Motor Show debut for talking pump

TEXAS Instruments' talking home computer, the TI99/4, has been incorporated into the design of a talking fuel pump which will be on display at the Kysor Industrial stand at this year's Motor Show at the NEC, Birmingham.

Called Derrick Derv, the pump has been programmed to accept information on any fleet operator's vehicle usage and to compute potential fuel savings after the fitting of Kysor automatic radiator shutters.

TI's speech synthesis chip enables the pump to request input of data and to announce the computed results, as well as having them on computer printout.

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Two in database processing race

From Keith Jones at IFIP, Tokyo

DEVELOPMENT of two prototype database processing machines is under way in Japan, according to two papers delivered on the opening day of IFIP 80 at Tokyo this week.

The Database Dataflow computer at Hokkaido University is intended to overcome data transfer bottlenecks by searching and sorting at the same time, while the Electronic disc-oriented Database Computer, EDC, adopts a similar philosophy to ICL's Content Addressable File Store, but uses 8 megabytes of bubble memory in place of the discs.

The Hokkaido system uses two specialised processors, a search engine and a sort engine. In the prototype version, each can handle 16-bit words and support 12-level operation.

Multiple tree searches can be pipelined, and since the system architecture is claimed to be easy to do in VLSI, a machine consisting of several networks of sort and search machines linked to a host is said to be perfectly feasible.

The Electronic disc-oriented Database Computer is the brainchild of the Japanese government's electro-technical laboratory.

Like CAFS, it adopts a relational approach to database management and can tackle jobs like listing the names of all employees over 35 who are clerks and are single.

Bubble memory modules, each with its own microprocessor controller are linked to a host and data files are distributed horizontally across them.

In another paper on the progress of relational database systems, Dr Frank King of IBM, a former head of its San Jose computer science department, was somewhat dismissive of machines like CAFS and EDC.

"They simply move the access path selection down to the microcode level," he declared. However, he felt obliged to admit that IBM's experimental relational database software, System R, had not proved sufficiently effective for high transaction levels.

Up to 16 single file accesses could be achieved on a machine of the power of a 3033, but the number fell to eight when these files had to be joined.

According to Dr King, System R was fine for ad hoc inquiries using the Query By Example, QBE, system.

Cross-border data flow controls agreed

A SECOND international organisation has reached agreement on controls over cross-border data flow, following the Council of Europe's accord (CW, October 2). The council of ministers of the 24-nation Organisation for Economic Co-operation and Development has, after protracted controversy, agreed a set of guidelines which do not bind member states but which deal with manual files as well as computerised ones.

Some OECD members wanted the agreement delayed for further consideration but despite this the guidelines, which have been under consideration for several years, were passed by, among other countries, the US, Canada, Japan and Australia, which are observers to but not members of the Council of Europe.

Canada may sign the legally-binding Council agreement but the US is considered "unlikely" to do so.

Jones

Founder leaves

FOUNDER and managing director of one of the few UK word processor makers, Eric Jones of Data Recall is leaving the company to make way for a yet-to-be-appointed younger man as part of an agreement with bankers Kleinwort Benson.

The company needs an additional £500,000 of capital to finance its future developments including a shared-resource word processor due for first deliveries next January.

CAP leads second UK Ada consortium

A CHALLENGE to the Ada Consortium, until now the only UK contender for contracts in the projected US defence language, is coming from a new alliance, led by the industrial services arm of CAP-CPP, CAP Reading.

Unlike the alliance six months ago of the "Three S's", SPL, SDL and Software Sciences, the new consortium has an academic flavour.

CAP, Ferranti, Scicon and STL have joined forces with Imperial College London and the SW Universities Computer Centre to bid for MoD Ada contracts.

The consortium is called Augusta and CAP is acting as the prime contractor. Exact organisational details have not been sorted out yet.

Augusta has been formed in response to MoD intimations that outfits should pool skills before making a tender.

Although there are no proper compilers for Ada, the language is nominally fixed as outlined in a US Defence Department reference manual published last July.

The development of Ada was initiated in the US, an initiative dating back to 1973 when it was discovered that some 450 languages were costing the DoD a staggering $3,500 million a year. The UK avoided this kind of expense by standardising on Coral but this is coming to be regarded as having served its purpose.

The future of Ada, a real time embedded language, promises to be long and prosperous. The letters of its name are not an acronym but indicate the military's fond remembrance of Charles Babbage's beautiful assistant Ada Augusta Byron. Her Dad was the well known poet.

NEWS IN BRIEF

132 column VDU

DATA General has introduced a 132 column VDU in the US, believed to be the first from a major manufacturer. Priced at $4,500, it has a 15 inch screen and displays 4,356 characters. An optional screen buffer memory holds 31 lines of text and provides up and down scrolling. Horizontal and vertical forms ruling plus symbols for paragraph, trademark and copyright are among the standard functions.

GEC's first SOS chip bid

GEC has announced it is working on a first generation CMOS on Sapphire technology and researching into a second, even though Hewlett-Packard, the only manufacturer to concentrate its efforts on SOS, has opted out.

GEC's work has led to the design and manufacture of specialised high speed large scale integrated circuits. One of the developed chips is a 1,024 gate uncommitted logic array which can be completed automatically using computer programs. The second generation will be used in very large scale integrated circuits.

Bristol office

THE Sussex turnkey computer company, Scan, has opened a Bristol office, equipped with a Texas Instruments DS990/10, a pair of 10-megabyte discs, a 50-megabyte disc, six VDUs and a Qume daisywheel printer.

Promise kept

IN keeping with its statement that users will be able to mix and match IBM word processors (CW, June 26) IBM has announced that the 6670 intelligent copier from GSD can now be attached to the 8100 remote processor from DPD when the latter runs under the DPCX emulating operating system.

Samples expected

SAMPLES of Nippon Electric's second-sourced version of Intel's 8086 16-bit microprocessor are expected in December this year with volume quantities following early next year. NEC Microcomputers will be supporting it with a full line of peripherals and will eventually second source Intel's co-processors.

Datasaab drops its OFT case

DATASAAB has given up its Office of Fair Trading action against Travicom, the airline seat reservation service for travel agents (CW, January 31). Datasaab complained to the OFT about the Travicom practice of charging agents using the service an extra £250 a month if they had a Datasaab TAS ticketing and accounting system rather than Travicom's alternative, DPAS.

Datasaab managing director Tony Checksfield told Computer Weekly he had received a letter from the OFT about the case and, as a result, he had decided not to pursue the matter.

He felt that little progress could be made with a public body like the OFT. In any case Datasaab was selling a lot of TAS systems despite the Travicom surcharge.

The TAS users group also complained to the OFT about Travicom and Dave Robertson of LEP Travel, the group's chairman, said that a reply had been received from the OFT but not studied in detail yet.

However, he said that it did not appear to be very "enlightened". He was not sure if the group would carry out its threat to complain to the EEC Commission if the OFT action failed.

Asked about the OFT case, Travicom general manager David Manners said he received a copy of the letter sent by the OFT to Datasaab's solicitors.

According to Manners, the letter said there appeared to be no case on the evidence presently available to the Director General to bring an investigation under the Competition Act.

At present Travicom provides online access for travel agents to the reservation systems of about 20 airlines via a switching centre in central London.

A new system called Travicom 2 will use British Telecom's Packet Switching Service and will bring in the reservation systems of major tour operators and other organisations.

Moving into hardware

THE Australian parent company of software house, Hartley Computer UK, is moving into the hardware manufacturing business with a family of Intel 8086 based machines called the 3900 range. They can run existing Hartley software like the HAPAS packages for professional accountants and should be introduced in the UK next March.

Hartley currently offers its customers Digital Equipment and Wang hardware to support its software products. Of the two 3900 models announced, the smaller, 3905 will fit in below Hartley's Wang 2200 based configuration while the bigger 3909 outperforms Hartley's DEC PDP 11/23 based systems. See IFIP Preview page 16.

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Sinclair withdraws new ZX80 Basic ROM chip

CLIVE Sinclair has withdrawn his new 8K Basic ROM chip for the ZX80 personal computer until early next year, only a month after its official announcement to the world (CW, September 11). He denies rumours that software bugs are the cause and instead puts the delay down to the incorporation of extra functions.

Sinclair customers suffered a similar period of delay after the launch of the ZX80 itself. Nine-week delivery times were explained away as production problems.

The 8K ROM chip is supposed to directly replace the 4K ROM original even though there is no upwards compatibility between the two slightly different Basics. When it eventually appears it will enable the ZX80 to work in floating point arithmetic to a 9-digit accuracy, claims Sinclair.

The extra functions talked about by Sinclair include a drive for the printer, which is planned for the first half of next year. Incorporating this on the 8K chip will not inconvenience Sinclair Research in Cambridge as the chip is still in the EPROM form and no ROMs actually exist, according to Sinclair.

When it was pointed out to Sinclair that it seemed rather odd, not to mention bad practice, officially to announce a product to the world and then withdraw it for "the incorporation of extra functions", he replied: "We were caught out; we wanted to bring out the 8K as soon as possible, but on the other hand we did not want to be severely criticised at a later stage when we would have had to bring out another version."

Since the decision was made last week Sinclair Research has written to customers who had already ordered the unit.

Sinclair

Briefing

DEC mini VAX next week

THE anticipated mini-VAX from Digital Equipment is due for launch next week. Thought to be called the VAX-11/750 (CW, August 14), the machine is a re-implementation of the VAX processor in low-cost LSI Gate Arrays. Maximum main memory is thought to be 512K-words.

Several other products are in the pipeline at DEC, notably a single-board VAX, a super-VAX and a big brother for the DECsystem-20 mainframe. The last machine, code-named Hydra, is thought to be a multi-processor machine in the IBM 303X class.

Doom watch

BERLIN was the host for this year's IKD, the biennial congress for Data Processing, with the theme "Mastering Information Technology – Challenge of the Eighties". Berlin was chosen so that participants from Eastern bloc countries, including East Germany, could attend, and for that reason will continue to host IKD. At the close of the congress, Brunel University's Bob Parslow sounded a warning about the computerised destruction of Western civilisation. See page 14.

EEC strategy

A TOP-LEVEL conference on a European strategy on Information Technology for the 1980s is being held by the EEC in London on October 24. Companies, trade unions, and educational bodies will be told how they can benefit from EEC subsidies in this area, and Sir Keith Joseph, and Viscount Davignon and Christopher Layton from the EEC, will be among the speakers. Further information from the NCC.

Sandwich lunch

IN an effort to alleviate the serious shortage of firms willing to take on sandwich students, Brunel University Computer Science Department is holding a "sandwich lunch" on October 31 to propound the benefits of the scheme to employers and enable them to meet some prospective students.

MicroFocus Coral

CORAL 66, the high-level language often used in real time applications, is now available from MicroFocus for Intel 8080 and 8086 processors. The RCC80 compiler is available under Intel's Isis operating system and the popular CP/M. The CP/M version is available from Fylde Microcomputer Computer Services in Lancashire.

Univac opens US to ICL

IT appears that Univac's VS/9 operating system for the larger 90-series machines is a dead end, and the company is working on a conversion facility to ease users over into the 1100 line. The news leaves a substantial US base of 90/80, 90/70 and 90/60 users wide open to attack from two European manufacturers with alternative compatible solutions, ICL and Siemens. However ICL is already in the US, albeit in a small way, while Siemens has no mainframe operation there.

Like others before it, Univac is finding it increasingly expensive to maintain and develop two incompatible mainframe lines, and the 90-series users, being substantially fewer in number than the 1100 users, are getting impatient with the company for not boosting the power of the 90/80 and adding features to the VS/9 operating system.

Univac's solution is reported to be an attached processor version of the 1100/60 bit-slice mainframe consisting of one 1100/60 processor and a new processor built with the same Motorola 10800 four-bit bit slice ECL microprocessors as the 1100/60. Since this chip is a fast device, it is conceivable that a straightforward emulation of the 90-series processor could be built, one which was much simpler than the extremely complex architecture of the 1100/60. However, the new machine, rated at 0.9 MIPs, would only meet the upgrade needs of 90/60 users.

In the Univac solution, two processors would share main memory, but could not share files, compilers or utilities, and the idea would be for users to run unconverted applications on the VS/9 processor while conversion was in progress, but develop all new applications under OS/1100.

The 90 series machines are developments of RCA's Spectra 70, which was licensed to English Electric – later ICL – for the System 4 and to Siemens for the 4004, which has since been developed into the 7.700 and new 7.500 lines.

It is unlikely that anyone will be prepared to take on substantial support or further development of the VS/9 operating system, but both Siemens and ICL can offer US 90-series users attractive alternatives to the Univac approach. In ICL's case it would have to be DME for VS/9 – but the expected power on the forthcoming "2966"

● Turn to back page

Memorex out to boost software

A TIE-UP with Duquesne Systems, a systems software house in Pittsburgh, is giving Memorex new software resources to offer its wide customer base.

The name Memorex is associated more with IBM-compatible discs and peripherals than with software, but the company's answer to its much-publicised hard times (CW, August 21) seems to be diversification, and it's out to expand its software market.

Memorex has announced its own products, MRXPRINT and MRXDASM, as well as offering Duquesne's Shared DataSet Integrity and Shared Tape Allocation Manager. Besides SDSI and STAM, Duquesne provides a family of products called Quantitive Computer Management which includes systems performance and evaluation tools.

Memorex's own two products are an indication of the company's awareness of the software market. The MRXDASM package is a dump/restore facility in direct competition with such products as Fast Dump Restore. Originally developed by Far North Systems, it is being marketed worldwide by Memorex with free evaluation test for 30 days.

The MRXPRINT package is for the local or remote printing in the MVS environment, aiming to improve turnaround.

Duquesne's SDSI is devised to allow the sharing of datasets among multiple systems without endangering data integrity or limiting access. It overcomes the drawback of having entire volumes of data reserved on shared devices; a problem not addressed by IBM until the MVS extensions due in 1981 (CW, July 31).

The other major product, STAM, is said by Duquesne to be "a comprehensive solution to the problems of sharing mountable devices between two or more systems."

Burroughs sues in buy 'German' row

LEGAL action is being taken against a West German provincial government by Burroughs, in an effort to force the fulfilment of a contract made in 1978 for the supply of a B7800 worth $5.5 million to Bremen State University. Ministers of the Federal German Government have been applying pressure on the state to buy a machine through Siemens instead, even though this would be made by Fujitsu in Japan.

The B7800, built in the US, was delivered in November 1979 but never installed, Burroughs GmbH having won the contract in a competitive tender in which, it is understood, the Siemens offer was for performance well below that required. Subsequently Siemens has submitted a large number of improved offers, and Burroughs is claiming that this is a serious breach of the law covering public procurement.

Siemens, on the other hand, asserts that additional demand on the machine from a new polar research institute in Bremen means that additional power will be required and the earlier specifications no longer apply.

Federal Finance Minister Hans Matthoefer wrote to the Bremen state senate at the time the B7800 was being delivered to ask it to reconsider approval for the purchase, in favour of a machine from a German company. Another minister, Volker Hauff, who is in charge of research and technology, threatened to withdraw the federal funds that were to cover 85% of the cost. The senate has since been considering the matter and has just received an auditors' report suggesting that re-opening the tenders was of doubtful legality.

It has been claimed that a senator has been leaking details of Burroughs' offer to Siemens.

The Siemens processor under consideration is the model 7.880, built by Fujitsu as the M-200, very much bigger than anything Siemens makes itself. Siemens claims that 75% of the value of the system is German.

This is the first instance of pressure to buy European equipment that has been experienced in Germany.

Local networking planned for IPA

ICL is to add local networking to its Information Processing Architecture, and will decide which standard to adopt before the end of the year. Speaking at the ICL 2900 Club last week, the company's Communications Marketing Manager Gordon Peake said that the system could be proprietary, or it would follow a proposed standard such as the Xerox Ethernet, already adopted by DEC and Intel.

Peake also said that the ME29, and the System Ten or its derivatives, would become true SNA products, implying that they would be able to replace machines like the IBM 8100 in an SNA network.

It was stressed once again that IPA would be fully supported only under the three new operating systems, VME/B, VME/K and TME, and that ICL would not be supporting X25 packet switching under DME.

"It may happen, because somebody like Dataskil may provide a solution, but it will be outside our mainstream product line," commented Peake.

2900 Club reports – page 15.

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COMPUTERVIEW

The stranglehold of PTT monopolies

THE abandonment by I.P. Sharp's time sharing service of its facility for sending messages terminal to terminal emphasises the uncertainty which now overhangs international telecommunications in Europe.

The ins and outs of the Sharp case are not clear, and the company does not want to say too much for fear of antagonising PTTs which could hold its future commercial life in their hands.

What is clear is that there is no unanimity between European PTTs on what should and should not be permitted in the way of new services like electronic mail.

It seems to be permissible in all the major European countries to send electronic letters from an IBM 5520 word processor in one department of a company to another 5520 installed with the same company at a distant location.

In the UK, it is very unlikely that anyone will complain if you send a message from your 5520 to my 5520, even if we work for different companies. However, it is very likely that if the West German Bundespost caught us carrying on such a clandestine correspondence, it would order us to desist in no uncertain terms.

IBM cheerfully acknowledges that it sends electronic messages between its own 3750 telephone exchanges in France and West Germany; that is probably permitted, but the issue is not clear-cut.

All of which underlines the extent to which new technologies have far outrun the ability of the legislative telecommunications bodies to keep up with the changing environment.

Honeywell has just joined ICL and DEC in declaring their commitment to open systems networking, mapping their own proprietary network architectures on the ISO seven-layer model.

The whole point of open systems networking is that ICL terminal should be able to speak peace unto Honeywell mainframe and vice versa. And the commitment by these companies to the common standard suggests that in a year or so, that dream, cherished ever since academics started playing with the grand-daddy of all big packet switched networks, Arpanet, a decade ago, could begin to become a reality.

But it is not going to be of much use if arbitrary restrictions are placed on the types of material which can be transmitted between devices and organisations.

In the UK, Prestel was the thin end of the wedge; once the Post Office was committed to pushing Prestel as hard as it could, many previously illegal attachments and procedures suddenly became acceptable.

Since then, the government has made it policy to relax the Post Office monopoly, and in the UK people can do more or less what they want to.

The French PTT too is not illiberal: its main concern is protecting French industry, and so you are allowed to do more or less what you like in France provided that there is no French company with a vested interest in your not doing it.

But West Germany's Bundespost, the main villain of the I. P. Sharp piece, clings tenaciously to its monopoly.

It is surely to the eternal shame of the Bundespost that it crippled the commercial exploitation of the Nixdorf data telephone, which ranks with ICL's CAFS and Prestel itself as a truly innovative European product. There is nothing intrinsically brilliant in technical terms about the data telephone, CAFS or Prestel, but each applied existing technology in a new way to achieve something simple but unique.

But the Bundespost forbade the use of the data telephone for transmitting data between organisations: users had to have two lines to each system, one for voice, which could go anywhere, and one for data, which could only be transmitted within the company. Nixdorf Computer is a $100 million company in the US today primarily because Heinz Nixdorf himself was so frustrated with the obstructive attitude of the Bundespost to one of his most brilliant brain children.

Europe cannot afford to cripple its computer industry with that kind of obstruction; users and manufacturers, who are so often at loggerheads, must unite to drag the PTTs into the twentieth century. And for once the UK, in the shape of British Telecom, is showing the way.

LETTERS to the EDITOR

Development offer

I AM a final year honours degree student studying Computer Science at Cambridge University. This year I have to undertake an extensive computing project. The choice of subject and programming language is left to my own discretion.

Rather than do something that would be of little benefit to anyone in the long run, I wish to inquire whether any company has any suggestions for this project. Indeed, if there is any software package that may need developing over the course of the next eight months I would certainly consider undertaking it.

I have access to a number of computers including the University's IBM System 370 computer which has facilities for all the common programming languages and many of the not-so-common ones.

IAN S. MAY
Churchill College,
Cambridge.

Recruitment strategy

MR Wood's letter about his experience in interviewing TOPS graduates raises a number of issues from the point of view of the personnel professional. I certainly would feel it discourteous to invite for interview a person who I believed was unlikely to be suitable for the job, always supposing I had suitable candidates.

On the other hand, should there not be a suitable candidate with the requisite experience I would of course have to consider whether to take a partially trained one like those from the TOPS courses. A call to the local manager of PER, carefully phrased, would tell me something about the salaries expected (or even to the local college offering courses) and I would then need to consider the costs of leaving the post unfilled against the benefits of having the employee and the cost of training.

I might even make an offer based on a training salary during probation followed by a full salary when competent, if I thought the market would bear this. Incidentally, I would take it as an advantage that the candidate had achieved something in his profession, and wished notwithstanding this to continue in a new one, and that he had to engage and a family might be some of my colleagues consider a sign of maturity and stability compared with a younger person.

I wonder if Mr Wood makes appointment. If his vacancy is open perhaps he might benefit from another professional's approach to simple recruitment strategy.

PETER COPPS
Lecturer in personnel management

R & D software sought

I AM about to become chief nursemaid to a maximum configuration Hewlett-Packard 9845 desktop computer. My employers, Gould Advance, are buying it as a development tool. We are interested in any software for this machine which is applicable to electronics research and development.

Can your readers help?

PETER PADMORE
3 Boyd Close,
Bishops Stortford,
Herts.

Unfair to TOPS

YOUR article on September 4, Why Are They Not Wanted? raised important issues, but perhaps treated TOPS less than fairly.

Placing TOPS trainees into employment from our computer skills courses is becoming more difficult, but this is a symptom of the present generally poor employment situation rather than any shortcomings in TOPS courses.

There is no shortage of computer training schools but it is not true that a company does not have to be a good one to qualify for TOPS support. A new course is added to our range only when certain stringent criteria are met. All new courses are given a pilot run and carefully evaluate before the go-ahead is given.

In addition, we ensure that only suitable applicants are selected for training. Once in training, their progress is closely monitored.

You allege that the content of TOPS programming courses is basically the same. In fact, they vary from a 10-week course where students are taught Cobol to the 20-week course, which includes both Basic and Cobol languages.

A number of establishments in both public and private sectors provide training for us and we have not so far attempted to impose a particular pattern on them. However, we are naturally concerned about the extent to which various different programmes continue to meet the basic needs of industry. We have commissioned a survey to establish employers' recruitment practices and pre-entry training requirements, not only for programmers but also for systems analysts, analyst programmers and computer operators. This will help us to decide the structure of future courses supported under the scheme, and related selection criteria.

J. K. FULLER
Manpower Services Commission
Ebury Bridge Road,
London SW1.

Use sandwich students

THERE is a further source of programming/junior analysis recruitment which DP managers such as David Wood (CW, September 25) are increasingly making use of. Many polytechnics, including my own, run degree and HND courses in computer studies which are very commercially oriented, and which contain a "sandwich" element of typically 12 or 8 months. Taking a student for her or his industrial training period has three principal benefits:

- a source of manpower in the short term
- a potential source of long-term recruitment.
- a chance in some measure to influence the "output" of higher education.

Since the numbers of students on our courses are steadily increasing, we are continually on the lookout for further interested potential employers.

BOB BURNS
Department of Computer Studies and Mathematics,
The Polytechnic,
Huddersfield.

1984 and all that . . .

THIS week's example of the strange things people say in the media about computers was sent in by J. Carr of Trowbridge, Wilts, who wins £5. "Every industry has its own view of standard routines. We developed a payroll for a laundry that operates 8,000 different rates of pay. The national farmers' union has laid down standard rates of reward for farm workers who deliver rabbits' and rats' tails. And the rates include half-pennies, which no computer can calculate."
Accountancy Age.

Honeywell DSA users can mix and match

CONFIRMING all the predictions made for it (CW, July 31, September 25), Honeywell's Distributed Systems Architecture, announced last week, conforms to the ISO seven-level model for open systems interconnection. As things stand, therefore, Honeywell and ICL users should in the medium term be able to mix and match systems from either company in their networks, since ICL's IPA conforms to the same standards.

Like ICL too, Honeywell has chosen to put the lowest four levels – the transport station, the network, link and physical level protocols into a front end processor (see diagram). This cleanly separates applications from networking, and avoids the problems created by IBM with SNA, which at present requires substantial networking software on the mainframe.

The bottom three levels of the model consist of the standard definition for the X25 packet-switching protocol.

At the bottom of the model (see diagram), the link level can be RS 232C or RS 449; V24 or V25, or X21 for interfacing to circuit switched networks.

The link control protocol is of course HDLC, as used in X25; Honeywell conforms to the ISO definition. Honeywell's VIP and the TTY protocols can also be used for local connections.

Network control routes traffic onto the correct physical network circuit, and supports private point-to-point networks as well as X25 nets.

Transport control provides the end-to-end control between the sender and the receiver, receiving data from session control and multiplexing it – or vice versa.

All four of these layers run in the new front end processor, called Datanet 8, which can be used as a communications processor with Honeywell's DPS 8 and Level 64 mainframes and CII-Honeywell Bull's DPS 7 successor to Level 64 and the Iris 80.

Within the host mainframe are session control, presentation and application.

Session control establishes and manages the interaction between two co-operating processes, which can be on the same host or on different machines. A connection protocol is used for setting up and closing down a session, and a dialogue protocol controls data flow between the processes; both are transparent to the application.

The next layer, presentation control, carries out any necessary reformatting or transformation of data, allowing a variety of terminals and devices to be accessed transparently.

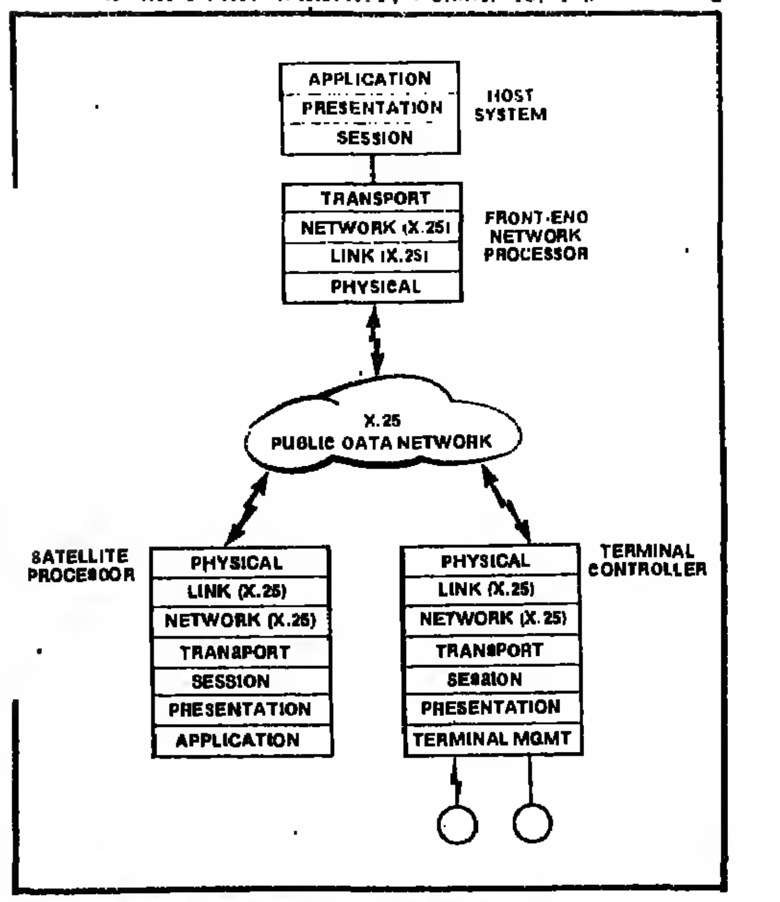
The application layer embraces everything else: application software, and system software such as transaction processing, file transfer, terminal concentration and remote batch working.

Two new pieces of software have been announced by Honeywell: GCOS 6/DSS allows the Level 6 minicomputer to be used as a satellite processor in a DSA network, performing the same role as the 8100 in an SNA network, and one of the roles planned for the *ME29* in an IPA network.

Further along

The other new piece of software is Distributed Network Supervisor, which provides the network management functions, and runs on Datanet 8.

ICL has a Multi Function Communications Processor in the pipeline which will perform the same functions as Honeywell's Datanet 8, but has not announced it yet. Honeywell is substantially further along the path that ICL is travelling, since CII-Honeywell Bull has been marketing DSA in France for about 18 months.



Honeywell's newly announced Distributed Systems Architecture fully supports the CCITT X25 packet switched and X21 circuit switched network interface protocols. Diagram shows how the DSA functional layers are configured when interfacing to an X25 network.

STC steps up its challenge to IBM

STORAGE Technology has announced its answers to the IBM 3380 and 3375 disc drives, and has also added a data streaming feature to its 4305 Solid State Secondary Storage system which doubles the transfer rate to three megabytes per second.

Against the 3380, Storage Technology offers the 8380, which comes with two spindles and two actuators per spindle. Spindle capacity is 630 megabytes for a grand total of 1.26 gigabytes.

It is claimed to be fully compatible with the 3380, and it attaches to all machines from the 370/158 to the 3033 or compatible via the Storage Technology 8880 controller. It has a three-megabyte per second transfer rate, 16 millisecond seek time, and a 5.6 megabyte fixed head option is available. Prices in the US range from $79,380 to $139,630, and first shipments are set for the second quarter of 1982.

The 8370 is a spindle device with dual actuators and the facility, also available on the 8380, to switch the two sets of electronics between the two actuators. Drive capacity is 571 megabytes, seek time is 20 milliseconds, and transfer rate is 1.86 megabytes per second. It is claimed to be fully IBM 3370 compatible, and is attachable to the 4331 and 4341 or equivalents. First shipments are set for a year from now, and US prices range from $25,270 to $46,330.

Data streaming channel support for the 4305 solid state backing store doubles the maximum data rate to three megabytes per second. It will be available a year from now, and will be offered as a field upgrade. The 4305 can be attached to any IBM or compatible mainframe from the 370/135 up.

Cost-cutting poses big problems for RHA

THE Department of Health and Social Security policy of saving money with standard systems has created serious problems for the Oxford Regional Health Authority computer centre and the area treasurers that it services.

Oxford RHA uses the Standard Accounting System, SAS, developed by the West Midland RHA and, at the moment, the ledger updating part of SAS is swallowing up over 200 hours a month on Oxford's ICL 1904S. This compares with the 10 hours processing time needed by the former ledger system.

According to an Oxford RHA spokesman, the problems are caused by the cross charge facility part of the ledger system which is intended to deal with transactions between the areas and districts covered by the RHA. He said that all data was held on one large serial file that occupied 16 file store reels with the result that there were major scheduling difficulties. Other work, including program development, was being held up because of the problems.

SAS is run in whole or part by 10 out of the 14 RHAs in the country but Oxford used the cross charging more than any other authority at the moment.

A spokesman for the West Midlands RHA, which is the centre of responsibility for SAS, said: "We are working with Oxford to rectify their problems. The cross charging facility was seen to be a rational requirement when we developed SAS."

Syfa system gets 'fiercer' big brother

TWO new models have been added to Computer Automation's "IBM killer", the Syfa business and communications system. The new model in the UK is a bottom end system, the Syfa 100, while in the US, a very big brother for the existing systems has been added.

The UK product is targeted at a new IBM product, the 5280 data entry system from the General Systems Division. It has a base price of £5,000, for which the user gets a processor with 32K-bytes of memory, display and 250K-byte floppy disc unit.

It is programmed in the proprietary Sybol language, and can be used for stand-alone processing as well as data collection validation and transmission to a larger Syfa system or to an IBM host. Two printers are offered with it.

The new Syfa 2000, at present offered only in the US, is the biggest model in the line, and should prove an even fiercer competitor than the other models have been for IBM's 8100 remote processing system. It comes with 256K-bytes of main memory, a 2K-byte cache, three 80 Megabyte drives, 600 lpm printer and 14 displays. For that, the US user pays $205,000. It is based on a faster processor than the Syfa 1000, and is claimed to give 40% more power.

Downtime

by Chad

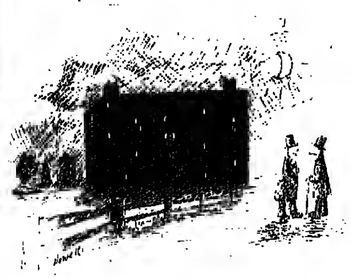
Machine grasses on vandal

EXCELLENT news here that poor downtrodden machines are starting to fight back against the nasty humans that mistreat them. The US newsletter Privacy Journal reports that a man in Wisconsin broke an automatic teller by kicking it. However, he had already keyed in his ID number, which the machine remembered, enabling the police to nip round and nab the culprit. Quoth he, "I was so upset, I just reacted. I didn't mean to break it."

This will, however, worry the privacy campaigners. There is a well-established principle that you must not use information for a different purpose from that for which it was collected. Obviously the man put in his number in order to get some money, not arrested. I am sure there will be an outcry that machines must not invade the privacy of their customers, even in self-defence.

Well, we know that privacy laws are a tangle beside which the Gordian knot pales into insignificance. Nonetheless I note that the new OECD guidelines on privacy specify: "Member countries should also ensure that procedures for transborder flows of personal data and for the protection of privacy and individual liberties are simple." Wow! Isn't it wonderful how hope springs eternal, in politicians' breasts at least?

Something bothers me about that cash dispenser. He broke it just by kicking it? I suppose all you need to rifle the money compartment is a tin opener. Now I just hope my tin opener doesn't leave tell-tale identification marks.



"Sounds a brilliant idea, Hollerith. How on earth did you think of it?"

Some puce faces at Plessey

IT'S good for advanced technology people to be brought down to earth with traditional problems once in a while. I hear there has been a lot of itching going on at Plessey's factory at Beeston, Nottinghamshire, which was invaded by fleas for four weeks. Workers stayed away in protest until council officials fumigated the place.

You would have thought Plessey would have invented a microprocessor-controlled flea catcher by now. Maybe we are just lacking in enterprise these days. It was years ago that somebody made a fortune by advertising for mail order an "absolutely guaranteed foolproof" flea killer.

When you had sent in your money, you received in return two wooden blocks, labelled I and II. The instructions read: "Place flea on block A. Strike with block II. Your money refunded if this does not work."

The puzzling thing about the Plessey story is that Beeston is where Des Pitcher's merry men are busy designing the company's all-singing-and-dancing electronic Office Of The Future. Now as you will know, these OOF thingies are full of chips. What you may not know is that in France, chips are known as "fleas".

"Puces" is the actual word the Frenchies use. Surely there must be some fiendish Gallic plot going on here to sabotage our efforts to grab a piece of the action in "bureautique"? On the other hand, maybe Plessey has a secret co-operative programme going with the French (like Concorde helps!), and when they ordered a batch of chips there was a little semantic misunderstanding!

Technology takes a back seat

NEWS now comes from Japan that technology has taken yet another step towards driving us all stark, staring bonkers. Cars in the US are bad enough when they buzz at you in several different pitches at once whenever you put the key in or take the key out or open the door. Now Toyota has substituted a voice synthesiser for the buzzers, to tick you off in "querulous high-pitched female tones".

It does at least add "please" to "fasten your seatbelt", but it isn't just at the end of your journey that it yatters at you. If the fuel gets low as you are driving along it will interrupt your intimate conversation with your driving companion and complain that it doesn't like being stranded. The fact that your whole intention was to be stranded in a remote romantic spot cuts no ice with it.

The idea of having a mechanical backseat driver as well as a human one gives me the Class A willies. Anyway, we in the UK are safe for a while yet; at the moment the computer can only speak Japanese.

MICHIE'S PRIVATEVIEW

Computer excellence and the human need

THE outcome of the Third World Computer Chess Championship in Linz, Austria is now decided (see panel). The occasion included an address by Claude Shannon, founder of the mathematical theory of communication and author of the classic paper on programming a computer for playing chess, published in 1950 in the Philosophical Magazine.

Meanwhile Carnegie-Mellon University in the US has announced the establishment of a $100,000 prize for the first computer program to become World Chess Champion and the beginning of annual computer-versus-human competition. The prize, called the Fredkin Prize, has been established by the Fredkin Foundation of Cambridge, Massachusetts.

The competition will be monitored by the International Joint Conference on Artificial Intelligence (IJCAI) whose headquarters are in Menlo Park, California. The IJCAI is a non-profit technical organisation devoted to the advancement of the science of computer program construction with the end result of achieving intelligent action by computers. CMU will act as a trustee for the prize until it is awarded.

Dr Hans Berliner of the CMU Computer Science Department, himself a former World Correspondence Chess Champion and author of the computer backgammon program that last year defeated the World Backgammon Champion in Monte Carlo, has been selected to head a committee that will formulate the precise rules under which the competition will be held. "We want to ensure that any human competitor who is playing against a computer can have the right to place a qualified observer at some point to guarantee that the computer is actually making the moves and not a group of consulting chess experts at the end of the wire", he explains.

Winning

There is no chance that a computer will become World Chess Champion in the next five years, Berliner believes. "It will take more than five years and probably much longer," he says. "By 1990, I think there is a 50-50 chance that it will happen. From that point the odds will gradually get better and twenty years from now it is almost a certainty."

Winning the championship is a long process that takes four years for a human, and the computer likewise will have to work its way up the ladder in tournament play. "Even getting to the first rung of that ladder is three or four years away," Berliner continues, "but I think a computer will be playing in the US Invitational Championship within the next five years."

In the interim, a set of inccotive prizes will be offered each year for computer-versus-human competition. "Two human players of a specified skill level will be selected randomly from among chess players at that level," Berliner explains. "These players will engage the best and the second-best computer programs as determined by that year's competition. Each contest will consist of a pair of games with the players, human or machine, with the best score in the two games receiving the prize. In case of a tie, the prize money will be split evenly."

In each year, the skill level of the human players will be increased as will the amount of the prize. The first competition will be held this November at CMU and the prizes will be $1,500 and $1,000 respectively.

The Fredkin Prize makes a fine curtain-raiser for what is planned as a series of prizes for computer programs able to exhibit distinguished performance in a variety of fields of endeavour. The intention of the international awards committee, of which I am a member, is that the theme of human betterment and the quality of life should receive emphasis rather than the gee-whiz element.

Implications

There is an overlap of concern with those who are calling attention to social implications, now that aspects of mental expertise are beginning to be captured oot only in the laboratory but also by economic computing systems. The British Computer Society was represented at a recent workshop at Sussex University. Implications were discussed under four headings: Office Automation, Robotics, Expert Systems, Education.

It is no more than realistic to point out that, as regards incentive to apply the best talents to developing relevant software and AI technology, the market-place is pretty sure to look after the first three. When it comes to education, however, a whiff of glory and honourable competition, such as international prizes have power to generate, might not come amiss. A true breakthrough in the form of insightful and cheap computer tuition could well affect the future happiness of the world, not forgetting the third world, as powerfully as any of the suggestions to come so far to the IJCAI Committee.

Privateview will return to this topic. Meanwhile readers' comments and proposals are welcome. What problems of society call for action? Which, if any, of these might be materially eased by the development in the 1980's of this or that form of intelligent capability in computing systems?

Donald Michie

Professor Donald Michie is head of the Machine Intelligence Research Unit at Edinburgh University.

FOCUS

Keeping tabs on the surveys

THERE can be little doubt that industry surveys are currently leading the top of the DP activity leagues. So many reports in fact are jostling for our attention that it can't be long before some enterprising publisher issues a weekly digest of surveys.

No sooner has the industry digested the usually highly unsurprising findings of one such report, than two more arrive fully tabulated and expectantly wrapped on the DP scene. The chances of having a week free of surveys on such topics as salary rates and software packages seem about as remote as that of finding a seat in the many Covent Garden brasseries or an under-employed word processing operator.

Whether of course DP management can devote the necessary time and attention to studying the results of all the surveys, let alone implement some of the findings, is highly doubtful. In any case, any favourable finding will be speedily noted by the respective suppliers of goods or services and no time will be lost in informing all interested parties, whether by means of advertising, direct mail or direct approach.

Keeping close tabs on the survey findings could well become part of all major selection procedures. Although full-bodied reports from such noted research organisations as IDC Europa, Infotech and BIS are made available only to commissioning parties, the general conclusions are usually put on general release. Right now the information being released appears to be aimed at prospective purchasers of add-on systems who are being advised to think IBM PCM before toppling-up their configuration. Good news no doubt for such companies as Storage Technology and CDC, but bad news for those DPMs who neglected the alternative market place.

Latest on the survey scene is the Datapro/Computer Weekly user survey, which has compiled a report on the level of UK user satisfaction (CW, September 18). Nooc of the mainframe suppliers appear to have emerged with shining marks, ICL and NCR users seem the most disgruntled with their processing lot, while users of IBM and Honeywell seem reasonably content. Overlooking the possibility that the individual DP teams involved could well have a part to play in the merit stakes – a factor not normally analysed in such surveys – the overall findings were based on a minimal number of users. In the case of NCR, for example, only 19 users were involved in the exercise.

Such findings do not necessarily create overwhelming pleasure in the DP installation, especially when the recently chosen equipment clocks up low scores and penalty marks in comparison with competitive equipment only recently rejected in the selection routines.

One additional survey should, however, be issued without delay, that of evaluation of all the current surveys. This survey of surveys should be cost-performance related and contain full graphic displays of market shares over a five-year period.

TEN YEARS AGO

From Computer Weekly of October 15, 1970

Burroughs introduced the 700 Series of multiprocessor computers, said to be the company's answer to the System 370. The family was selling at £5 million plus for the largest model. . . . The price of IBM hardware was increased by 3½% . . . A personal record retrieval system containing the top 1,000 civil servants' records was in its final debugging phase and due to become operational . . . The Ferranti Argus 500 processor dropped in price from £10,250 to £7,250 . . . Honeywell's Data Products division signed a five-year contract with Yamatake Honeywell of Japan, for the production of terminal devices and other equipment . . . Magnetic Media was set up to produce computer magnetic tape . . . The Marconi-Elliot 900 Series computer package, claimed to reduce the time and money spent on the production of structural designs, was announced by Marconi Elliot Computer Systems and Engineering Solutions . . . Digital Equipment Co's PDP-8/e minicomputer was shown for the first time in the UK at Computer 70, held in Earl's Court, Olympia.

World chess champion

Winner of the 1980 World Chess Championships was Belle, which beat Chaos in a play-off after both had tied at the end of the final round. Belle is a new program from Ken Thompson at Bell Laboratories, New Jersey, which did well to defeat the University of Michigan's Chaos, a regular contandar for top honours in US competitions.

Third place of the 18 antrants was taken by Duchess from Duke University in North Caroline, which scored 3 out of 4.

The "horsepowar" (as Thompson describes it) behind Belle comes from a DEC PDP-11 attached to a hardwired chess analysis unit used to supplament the software and able to calculate at 160,000 moves/sec.

The winner of the last world championships in 1977, Chaos 4.8, run on a Cyber 176 from Control Data, this year had to be content with fourth place. The program comes from North Western University, US, whose former team leader David Slate could not get into the running with his New Chaos. It tied with six others for sixth place, and 2 out of 4 points.

Also equal sixth were the highest UK entry, BCP from Don Beal at Queen Mary College, London and Kaissa from the Soviet Union.

UK launch for Nestar's local network systems

THE LOCAL networking system developed by Nestar in California is now available in the UK through Zynar of Uxbridge, the Rank subsidiary that bought a large minority shareholding in Nestar just 11 weeks ago (CW, August 21). Zynar's managing director, Colin Crook, says he is looking for suitable distributors throughout Europe, as well as systems houses to buy OEM and build on applications packages.

The basis of the system, called Cluster/One Model A, is the £400 ClusterBus printed circuit board, which plugs into any of the expansion sockets of an Apple II microcomputer, enabling it to function as a workstation or a resource management unit in a string up to 300 metres long, of up to 65 micros.

One type of resource management unit is the disc-based filing system, which uses a 48K byte Apple II running the Nestar OS operating system to control the sharing of files held on discs ranging from dual floppies giving 1¼M bytes, to 33M byte Winchesters and combinations of drives up to 200M bytes. The 16½M byte Winchester version costs £7,750.

Daisy Chain

A disc-based print spooler is also nearing completion and systems to be developed in the UK include a gateway to Prestel.

The ClusterBus is a 16-wire flat cable containing eight data lines which give a transfer rate of 120K bps. The network can be configured as a daisy-chain, a star or a tree, since the circuit board has two connectors and the cable itself can also have branches. The board contains 24 chips including two 6821 I/O port controllers, a two kilobyte EPROM which holds the networking program used by each Apple, one kilobyte of RAM and an address comparator.

The system has been in full production in the US for four months, and trial production started ten months ago of an earlier version which supported the Commodore Pet and Tandy TRS80 as well as the Apple.

Amusement

It has now been decided to support the Apple III and to add more management unit functions before supporting further microcomputers, and anyway to go for systems using the newer processor chips.

One application of the system that Nestar is particularly proud of is at an amusement arcade called Sesame Place in Philadelphia, set up by the Sesame Street children's television programme team in co-operation with Aonheiser Bush.

There, three Cluster/One systems are used to control 70 Apples in the Computer Gallery, re-packaged with colour screens and washable keyboards, running games, such as a lemonaide stall simulation, which try to get away from the usual shoot-em-up syndrome.

Office system

RICOH is aiming to develop a complete office automation system according to the company's European director Yoshiobu Okuyama and, to do this, it will have to devise two different architectures for the Japanese market and overseas because of the totally different alphabets.

PAGE SIX — for programmers and analysts

by Pamela Rowe

Job scene not so bleak, says CDI

READER Mrs A. M. Smith wrote to this page (CW, September 4) about her problems in finding a job following a programming course at the Conrol Data Institute.

She complained that, although assured of a 98 per cent chance of employment, after three months and 160 applications, she was still unsuccessful. She also claimed 50 per cent of her fellow students were in the same plight.

CDI now reply to these criticisms:

"After reading your letter in Computer Weekly, I felt for the benefit of existing and potential TOPS students, who may now be severely worried about their chance of employment, that we should get the record straight.

"Firstly you claimed that 50% of your fellow graduates are still unemployed. All those who graduated along with you have been found employment.

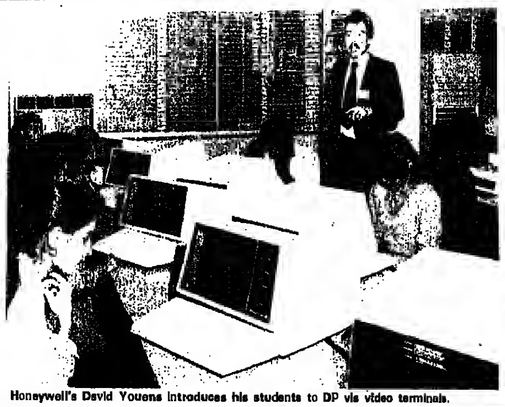
"You also failed to mention that less than two months after you completed the course, you wrote to inform us that you had decided to return to teaching and had accepted a teaching post.

"While CDI still maintains a placement rate in excess of 90%, we freely admit that, given the current economic climate, it is taking longer for our graduates to obtain jobs. Yet those with the determination to begin a career in the computer industry do, as is evidenced above, succeed."

JULIE BURROWS
Control Data Institute
Birmingham.

CONFERENCES

Infotech's State of the Art Review '80 will be held in London from November 26-28. It is designed for senior data processing people and explores all areas of computing. Events include sessions on future systems, software life cycle and the information industry. Further information is available from Maureen Nichols, Infotech, Nicholson House, Maidenhead, Berks. Tel: (0628) 39101.



Honeywell's David Youens introduces his students to DP via video terminals.

Fun and games with a video terminal

EVENING classes are here again. It's that season when your enthusiasm for one-line descriptions of courses lets you in for much more than you can take. It is only when the one line turns to many weary pages on a raw November night, that attendances tend to fall off.

One that sounds a great deal more fun than usual is the Class, arranged by Honeywell for local secondary school students of West London. Standing for Computer and Logic Appreciation for Secondary Schools, it starts off by introducing students to a video terminal with games like Invaders and Othello.

I went along to the first evening and spoke to some of the students – most of them sixth formers from schools as different as the very public Lstymer Upper School and state system Fulham Gilliat. The girls were predictably a bit giggly over their keyboards, but managed to tell me that they felt very lucky to have been selected for the course and were looking forward to it.

"A lot of the sixth form applied," said one girl. "About 35 altogether and we only had 13 places. I don't know anything about computers so when I saw the notice on the board I just put my name down quick."

"We are quite overwhelmed by the response," said Charles Scatchard, organiser of the Class course. "We have doubled the original class of 20 to run two in tandem, but there is still a waiting list of 40."

Selection was left to the schools, though motivation and ability was asked for. As David Youens, personnel director of Honeywell said: "You will need a certain amount of stickability."

No prior knowledge of DP is assumed, though one of the Latymer boys confessed to having a term of Fortran behind him.

Scatchard said: "In this course we are concentrating on more commercial aspects, because school seem to be concerned only with mathematical languages like Algol and Fortran.

"We are teaching Cobol as the main language and Basic because its use is spreading with minicros – and we'll have a look at some others including Forus, RPG, Coral and Assembler."

A comprehensive list of topics is spread over the 30 one-hour sessions held weekly on Wednesday evenings. The student is intelligently through basic descriptions of input and output media and devices, data base systems, decision tables, and many forms of data editing. The culmination comes in writing several complete programs at the end of the course.

Other games that will help in teaching along are Chess, Zeeks Troll and Adventure, a sort of computerised Lord of the Rings. Students will be assessed throughout the course and marked by computer.

At least 50% of the class time though will be devoted to hands-on machinery, using the Level 6 configuration at Honeywell's UK Education Centre.

Youens spoke of his fortune in having all the educational materials and skills to hand. "All we have to do was divide it up differently to reallocate it," he said, "And the instructors are giving their time completely voluntarily, which is quite a commitment over a year."

"We have no ulterior motive in giving this help to local schools," he said. "In fact its sometimes much more difficult than giving a cheque to charity – where the figures are all geared up to receive it."

"However we feel it is important that schools have an appreciation and awareness of computing and it is the policy at Honeywell to take an active part as possible in local affairs.

"If Class proves successful there is no reason why it should not be extended to other parts of the local community."

Thought about converting?

HAVE you thought of converting? Not your loft, but you. With the twin evils of recession and redundancy ravishing the job market, it may become necessary for programmers to be more flexible about changing machines and languages.

One who has recently faced conversion, from Cobol to Basic, is Terry Croker who joined Senosystems of Sudbury on September 1. The company supplies mini and micro hardware and software packages to the smaller businesses in East Anglia.

Terry has become one of 5 department of 22 programmers and analysts/programmers and will spend a good deal of his time on site, giving user support for mainly commercial systems. To cope with the travelling involved, Senosystems supplied him with a car – one of the attractions of the job to Terry.

"There was no formal training as such," he said of his first few weeks in the new job. "I was given a manual before I joined and that gave me a basic idea, excuse the pun, of the language.

Finding out

"I spent a couple of days playing, finding out how the machine works – because I'd come from a mainframe to minis – and then I was set some minor programs to write."

He explained that several new programmers were asked to write the same program accepting a name and adding it into the file, to set up an index.

"The idea was to teach us how to use a file, which is completely different in Basic. We all tried various ways, and we were allowed to collaborate."

I asked him his impressions so far and defied him to say "rubbish". Quite the reverse: "Basic is much easier to learn than Cobol. I find it simpler to use too, more precise and not so ambiguous as Cobol."

What about any difficulties or disadvantages?

"Apart from still thinking in Cobol, which I did at first – I used to flowchart as though I would be coding in Cobol. The biggest change was in file handling.

"At the moment it seems awkward in Basic, as you have to set up the file, set up the fields, then read in a block, and after accessing the records, put the block back again. You go on like this, either repeating it or closing the file."

Terry added: "But I know there is an access facility which gets round these difficulties." Another problem is that it's a more mathematical language than Cobol – for instance there's a lot of matrix handling. I think if your maths is weak you could manage, learning it by rote, but it would be harder to improve and you may run into problems later."

I asked him how he'd found the change from mainframe to minis. "No real difference, once I'd got used to the machine. I think it's a good idea to change anyway.

"It is all too easy to get set in one line of thinking, as though that is the way to program computers.

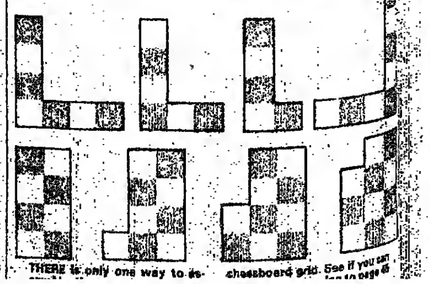
"Perhaps the biggest difference is that we're dealing directly with customers so work to much stricter schedules. If a job is late we won't just be moaned at by the DP Manager, we might actually lose the business."

Did Terry think it would be easier to convert a second time? "Oh yes. Having converted once you begin to see some of the possible variations. I'm very glad I made the switch, for many reasons – the company, the type of work, and the language."

"There are many versions of Basic. Terry uses Basic Plus, Version 7.

TERRY Croker was given no formal training for his conversion from Cobol to Basic; he was sent a manual to study prior to joining Senosystems of Sudbury, Suffolk.

Puzzler



THERE is only one way to assemble the chessboard grid. See if you can [illegible] page 8

SOFTWARE FILE

by Claire Gooding

User concern over VSPC

THE IBM Shore mainframe users group for Europe, the Middle East and Africa, known as Seas, has expressed concern about the future of IBM's Virtual Storage Personal Computing (VSPC).

Desk-top Pert for project managers

TO make it possible for project managers to analyse requirements from their desks, a Surrey company, Computerline, has developed a microcomputer management system, Micropert.

The system used Project Evaluation and Review Techniques (Pert) to produce data which affects deadlines and delivery dates.

It represents the logical relationship between activities as a network, to identify such things as the critical path through the project, key events including start and finish dates for different activities, and the resources available.

Computerline says these techniques have up to now only been available for mini and mainframe users, and that Micropert will make low-cost project management possibility.

The system works on a Z80A microprocessor with 65K-bytes of memory, which can also be used as a terminal to use Computerline's own services for wider scope.

WP option

A SOFTWARE option that brings word processing facilities to the DS990 models 4, 6, 8, 20 and 30 has been introduced by Texas Instruments. Named TIPE-990, the software operates with Texas VDUs and printers.

Modelling aid

THE long-established software products house ADR has launched a new system. A financial modelling aid, called Empire, it uses colour graphics to create easily-interpreted displays of present and future needs. It can be used to forecast requirements and shape a company's growth.

According to Dr C. J. M. Aarts, director of Seas, the indications are that VSPC development is to be dropped for DOS and VS1, and continued only for MVS.

The rationale behind this decision is apparently the need to remove the limitations which come from trying to fit the product to all three base operating systems, MVS, DOS and VS1.

VSPC developers at the recent Seas meeting in Norway were optimistic about its future, and claim that the gaps in its facilities can easily be filled in an MVS-only environment. Particularly needed is access to data in non-VSPC environments.

IBM introduced VSPC in 1975 in response to demand for access to a computer by non-technical staff. Before long, it had incurred criticism on the high cost and amount of core needed.

Freedom

It was designed to give a terminal user complete freedom to access and manipulate data from files already in the system. A manager with a terminal on his desk could run existing programs and create, store and run his own data files and programs.

Of the languages available under VSPC, APL is likely to be the first priority in improving support since over 75% of all VSPC installations use APL whereas only 50% use Basic or Fortran and only 25% use PL/I.

The APL extensions are expected to include background execution, event processing, use of "record-type" data structures and the incorporation of non-APL features into APL functions.

Two-thirds of the 300 or so licences sold for VSPC came from world trade customers, most of these from Europe; unusual for an IBM product where the ratio is usually 50:50 world trade: IBM domestic.

IBM in the UK was unable to comment on the predictions, but more information may be available soon. It will be awaited with interest by members of Seas, who include several of the most prestigious customers for VSPC.

Cobol for micros

ANOTHER UK contender in the Cobol-for-micros market is Interface Computer Services. Its commercial operating system for Z80 and Z80A micros contains what is described as a "true Cobol compiler" as well as features which are said to enhance the screen, disc drive and printing facilities of the widely-used operating system CP/M.

There is also a job executive with JCL written in Cobol, and an online program debugging tool, as well as automatic "housekeeping" facilities for disc maintenance.

THE 400 terminal, designed and developed in Australia by Electronic Control Systems, was originally adopted by Telecomputing for use with TPS and further applications have been developed.

ECS set up a manufacturing centre in California, making the 4000 and 4500. Telecomputing took over the marketing of the machines under the name TECS, selling utility and WP packages, Wordstar, Datastar and Supersort.

Phil Davies, who is in charge of TECS marketing, attributes success to the fact that the system is "not cheap and nasty – just cheap" as well as the operating system. "CP/M has become almost an industry standard; it allows a whole range of software applications to be used," he added.

Over 250 machines are either on order or installed.

TPS firm plans switch to hardware

WHILE everybody around is waking up to the potential of software, Telecomputing of Oxford, which started out with the ICL-compatible TP monitor TPS, is turning to hardware as its major source of revenue.

Sales of the TECS 4500 terminal and microcomputer now account for over 50% of its monthly sales of £200,000, it was announced at the opening of Telecomputing's London premises in High Holborn.

Telecomputing's success has been based on one product only and, since ICL seems to be putting more emphasis on integrated TP facilities, it makes sense to diversify.

With over 50 new sites, Telecomputing takes this as a sign that "ICL users continue to regard Telecomputing as the optimum TP systems supplier".

The latest version of TPS, TPS3, was designed to take into account the move demonstrated by the success of the ME29 to true distributed processing, where the machine is used as an office tool as well as a sophisticated mainframe.

Response

"We're not shutting down on software," said technical director John Garrick. "TPS3 will keep going. It is our response to the ME29, the stabilisation of the DME environment and ICL's Information Processing Architecture."

Garrick said he was not enamoured of any of the current operating systems, mainly conceived without TP facilities, saying: "A large general purpose operating system is not the way to cope with the increasing demand for networked systems. TP shouldn't reside in the OS – it's less efficient."

He disagrees with the opinion that external facilities won't be needed, and requirement for them will die off.

AN improved version of Cobol 80 (illustrated left) for use with microprocessors has been introduced to European markets by Vector Microsoft through Microsoft in Belgium.

There is special syntax for linking working storage and screen fields.

Also new is the Chain facility which allows any number of separately coded applications or segments to be reached from within a controlling Cobol program.

Microsoft already has 25 OEMs using Cobol-80; one fifth of the installations are in Europe.

MICRO NEWS

by Eileen Stainer

Nascom comes bouncing back

NASCOM Microcomputers has come bouncing back to life after four months in receivership, under a new owner, Peter Mathews, director of Prestel and telecommunications specialist company, Alltech Technology Initiative.

The new-look Nascom International, which will trade under its original name of Nascom Microcomputers, intends, as the name suggests, to hit the overseas market strongly. But not just its original market, Mathews stressed at the announcement last week.

Nascom is moving into the small business systems market with its first system, to be launched at Compec next month. It is also moving into the fast information market with a Prestel adaptor for under £150.

That's not all, according to Mathews. "Microcomputer technology has reached a plateau; from now on the emphasis is on its application," he said. "Microcomputing, not microcomputers, will be the technology of the 80s."

Mathews' first priority, however, is to get the company back to where it was before the receivers were called in four months ago because of a lack of capital. This means developing the home market as soon as possible. Then he intends to attack the export market.

He hopes to move into Europe in a big way by setting up a distribution network in each country, and is looking for partners in Europe at the moment. The Middle East and the US are also on the list, although the Nascom systems do not comply with US regulations yet.

But Mathews does not intend doing all this himself. "The Nascom is unique as it is a kit," he said. "We can gain by the ingenuity of 20,000 users who develop different applications for it."

User ideas

He welcomes ideas or work done by users and potential users and might even be willing to finance them to the prototype stage. Particular areas of interest include robotics, artificial intelligence and the development of microcomputers in the automotive field.

The first product, planned for release in six weeks' time, is the disc controller board, which was previously launched but did not actually get into production. Mathews promises that quantities will be available on release.

The first business system, which will run on the CP/M operating system, will be a tidied-up version of the Nascom II with 64K of RAM and around half a megabyte of storage on floppy disc. This will be low cost, according to Mathews, and normally available in the complete form, although there will be some kits.

Impressively, both the business system and the Prestel adaptor were in prototype form and operational at the announcement. The former was housed in two business-like stackable units, the system and the floppy disc drives, with a separate console unit.

Mathews intends to work closely with other companies, in particular the one set up by the original Nascom engineers, Specialist Micro Design. The Prestel adaptor was designed and built by SMD under contract with Mathews, before he had even put in a bid for Nascom.

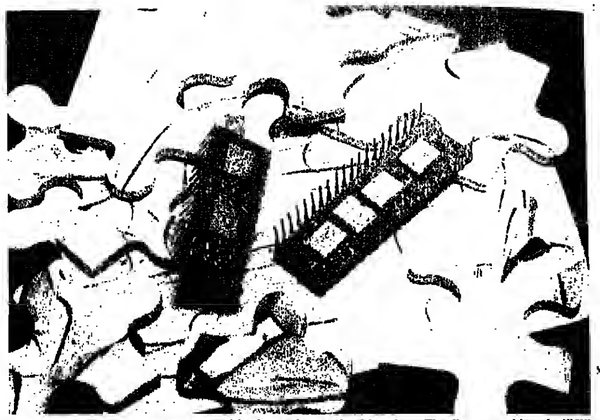
At the moment the new Nascom is in formation and the management expected to run the company in two weeks' time is Martin Tomlins, who also owns Microprocessor Developments. Both companies will have headquarters at The Business Centre in Pall Mall, London.

Software

Tomlins stressed that the Nascom 1 will be continued for the hobbyist market and the business market will just be an expansion. The company will also try to capture some sectors of the education market.

One of the prime objectives is to develop software for the Nascom systems, and this will be done by a new company called Natsoft. Mathews hopes to create a library of software programs, and again invites users to offer their creations.

Research and development is also an important factor on Mathews' mind. He is currently talking to four bodies, one of them a government body, to help with R & D in terms of management and technology.



Harris has employed a leadless chip carrier fabrication technique in its new series of data acquisition products. Monolithic dice are packaged in the carriers and soldered to both sides of a multi-layer ceramic substrate, resulting in a single 32-pin chip.

The first two chips, the HI-5800 and the HI-5801, are available now in production quantities to commercial or military specification.

Growth in electronics is only just beginning

THE ELECTRONICS industry is at the start, rather than the end of an exponential growth curve, according to Ben Rosen of Rosen Research in the US. And the market is looking way past the recession 00 into the growth curve.

This has led to substantial increases in stock performance of semicooductor companies like Intel, General Instrument and others in the market such as Tandy and Commodore, at the same time as a decrease in demand and prices.

Meanwhile, the recession has definitely begun to affect the semiconductor industry, says Rosen. He predicts a mirror image of 1980 to occur in 1981; a weak first half followed by a strong second half.

Growth

Rosen considers the advent of very large-scale integrated circuits suggests the start of the electronics revolution. More and more sophisticated processing power will make electronics easier and cheaper to use for a wider audience. This is happening now with speech synthesis and speech recognition breaking down the man-machine barrier.

He predicts that the semiconductor will increase its percentage of world gross national product rapidly in future years. Meanwhile, however, Rosen notes that the growth of US semiconductor companies will be constrained by five factors.

Firstly, Rosen believes that the semiconductor industry, especially the leading edge portion, is becoming increasingly capital intensive as a function of time. In 1976, US semiconductor companies spent about 10% of their sales on capital expenditure. This year the figure is expected to reach 19%.

The second factor is Japanese competition, which is increasing and will continue to do so into the 80s. Rosen points out that Japanese companies were initially successful in dynamic RAMs and now they are becoming more competent in other memories, microprocessors and telecommunication chips.

The need for extensive applications software with the increasing use of microprocessors will be a constraint on industry growth, says Rosen. Solutions to this problem will include more efficient high-level languages, better methods of applications programming and a future resubstitution of hardware for software.

Recession

Other factors are the serious shortage of electrical engineers in the US, and recessions expected every four to five years.

How will these constraints directly affect the semiconductor industry?

Rosen predicts a decrease in the number of companies starting out in the semiconductor field because of the large amounts of capital needed to start a leading-edge semiconductor company. During the 60s the amount was around the $1 million mark, now it is $50 million to $100 million.

Profits

New companies will be started up, says Rosen, but they will be in the semiconductor application field rather than manufacturing, as the return on investment is more attractive.

Existing semiconductor companies will need to run more profitable operations to cope with the capital intensity of the industry. Growth will not be possible without profits, says Rosen.

Distributors will benefit by the continuing trend of an increasing number of semiconductor users.

Rosen foresees the relationship between vendor and customer improving even further with long term purchase agreements being more popular. Customers are now so concerned about the availability of certain chips that they are offering to help fund new plants in return for part of their output.

Despite Japanese competition, Rosen feels that the US semiconductor companies will remain the leading innovators. The Japanese, however, will continue to increase market share because of their high quality, broadening product lines and availability of capital.

Interface cards from HP

THREE interface cards have been introduced by Hewlett-Packard for its HP-85 personal computer. They include a serial interface card which is RS232C compatible; a parallel, general-purpose I/O interface card and a binary coded decimal (BCD) interface.

The serial interface card provides bit-serial asynchronous data communication capability and supports current loop operation. Its features include programmable line characteristics which allow users to change baud rates, parity, bits per character and stop bits, without changing physical switch settings. Use of the serial interface with the HP-85 allows connections to peripheral serial printers and modems.

With the use of the I/O interface, up to four devices per card can be attached to two low-power bidirectional ports and two high current output-only ports. These devices can include OEM-designed and user-customised peripherals, printers, card readers, paper tape readers and punches.

The BCD interface can cope with up to two peripherals at one times and can include digital voltmeters, counter, medical equipment and electronic scales.

Real time course

A MODULAR course in real time computing starting at Preston Polytechnic this year, is to use a linked host-target configuration of a Systime Series 5000 and several Intel 8086 microcomputers.

A microprocessor development system called 'Context', which is produced by Systime, is to be used with it.

At a cost of £100,000, the complete project is designed to enable students to develop software for real-time microcomputer applications using Basic +2, RSX-11, Intel 8086 and Coral-66. They will also be able to design real time systems using Mascot.

Support for the equipment was provided by the Department of Industry's Microprocessor Applications Project, and enables students to qualify for grants.

Motorola first

MOTOROLA is the world number one in discrete components, according to director of European operations André Borrel.

He said that the top 12 companies accounted for 61% of the world market in 1979, and of these five were American, three were European and four were Japanese. Motorola, he claimed, was number one, with $419 million of business, followed by Philips with $290 million. He put the number one Japanese company, Toshiba, in fourth place with $212 million.

He believed the world market this year would reach $4,113 million, with Europe making up 33% the US 32% and Japan 24%. He predicted that by 1985, the market would have grown to $5,700 million.

Motorola intended to maintain its pre-eminence with new bipolar, power MOS and fibre optic products.

OP SPOT

by Paul Fisher

Going online

Operator Andrew Clark has recently returned from a 10 month contract in Belgium where he was working on a Nato project. He spent much of his free time writing a 60,000 word book called Quest For A Legend.

This is an account of an expedition to India in search of the world's largest fresh water fish, the giant mahseer. The three man team managed to hook the largest specimen for 32 years when they beached a 92lb whopper. Not satisfied with this, he is planning a return trip to break the 100lb barrier.

Clark is pictured here with his guide, Sundar, with a 77lb and a 45lb mahseer. He says: "My experiences of computers didn't help me at all." He is now looking for a publisher for his book and working with Resource Technology.

Seminar on management

A THREE day seminar called The Effective Use of Computer Operations Management commences on November 5. It is being held at the Cumberland Hotel, London and anybody interested in attending should contact Pauline Catton on 01-486-8377.

'Storm troops' for the ops room

SOMEONE is in a panic because a program completed three months ago still hasn't had its first run. A programmer's insistence for hands-on testing has caused a number of programs to be rescheduled out of sequence.

The daily Master File update, which is run twice a week anyway, has failed for the umpteenth time and the users have not had any output for three days.

Does this sound familiar to you?

According to Peter Easton, an associate director of CMG (City of London), such chaos "is typical and is often not the fault of the operators." CMG has a team of troubleshooters which is frequently amazed at the mess operators are forced to work with.

A recent four month assignment had CMG unravelling a big tangle at the mainframe installation of a large insurance company. The brief, to advise and produce improved standards of operations, sounded simple.

In practice it meant coming to grips with the problems created by inadequate processing power and memory, lousy documentation and staff problems. One of the first changes was the sacking of the operations manager.

Delays

Even though the computer was running 24 hours a day seven days a week there were still serious delays with user output. Thus the first problem CMG investigated was whether the existing kit was powerful enough to cope with the workload.

It was found that if re-runs were kept to minimum, the machine could cope. However, in order to reduce machine time, it was decided to upgrade the equipment and increase processing power by 100%.

Easton thinks that if the difficulties had been faced a year earlier such expenditure may not have been necessary.

Another major problem was the lack of documentation. Production jobs were failing because operators had no run sheets to work from. Programs were run out of sequence or not run at all.

Production run sheets were designed with relevant file names and run instructions so that, for the first time, the operators could see what files were being created, updated and read. According to CMG this is a necessity.

To help programmers set up test runs, CMG wrote a testing run sheet which holds more detailed information than the live run sheet. Programmers doing hands-on testing had become the rule at the site. CMG locked the door on them.

Locked out

"The only programmer," says Easton, "who should have access to the computer room is the systems programmer. Hands-on testing is a waste of time."

Once the operations department was receiving more information from the programming department, JCL was produced. This reduced run errors and run time. Jobs were set up quickly and the operators had more time to check the control systems generated to provide statistics on machine usage, error reporting and library control.

Easton: "If operators tried to get management to see their side of the fence, there would be a greater number of happy faces in the business."

The computer had about 200 disc packs but the operators were not allowed to control file allocation. On CMG's advice the operations department took over. Once the discs had been logged and the files recorded it was discovered that 30 discs could be cleared of redundant information.

Having got the operations department under control CMG scrutinised more technical aspects. The use of supplied software was investigated such as Sort and File Dump/Restores. CMG claims to have improved efficiency all round.

Weekend overtime was done away with and CMG finished the project by considering an increase in the number of production runs per week.

Dealing with the information explosion

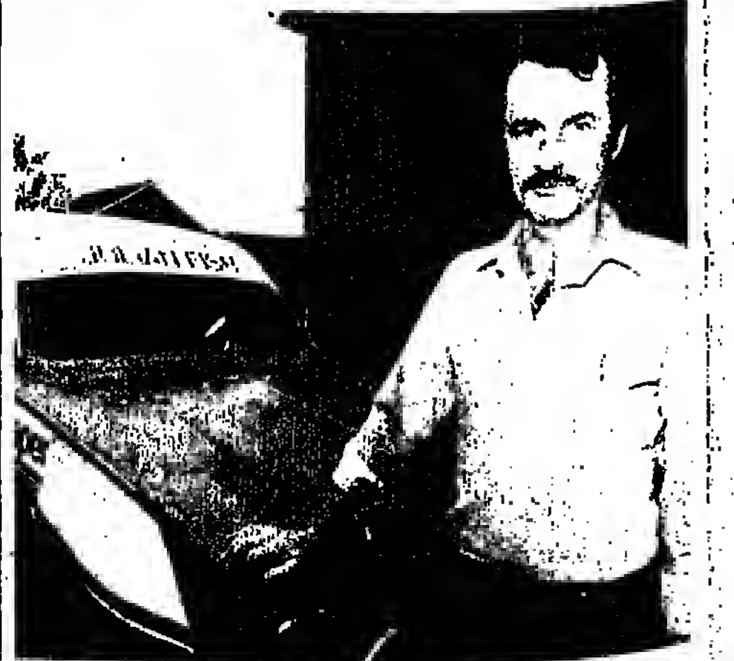
THERE is many a pile of paper to testify that the information explosion is with us. Computers generate reams of the stuff. It is obvious that most people don't trust the invisible writing on tapes, discs and the like and still feel a need for the reassurance of print out.

I've got a fair idea of what happens to the 92,000 copies of Computer Weekly produced every week but what about all the paper spewing out of your printers?

Does it go to the dustman, does the management grab it or have you got an arrangement with a latter day rag and bone man?

I'd be interested to hear of any tips you might have to pass on to other ops about the cloak and dagger business of flogging used paper.

All correspondence should be in sealed brown envelopes and will be dealt with in the strictest confidence.



Me and my hot rod.

More sponsorship needed for hot rod enthusiast

HOT rodding is an expensive sport. Engines cost up to £4,000 and drink a gallon every four miles or so. Therefore, Julian Fish, operations manager at the Robert Horne Group's Northampton installation is dependent on a certain amount of sponsorship.

His employer has dug into its pockets but more is needed to keep the car on the track. Any offers?

Fish says: "I've always been mechanically inclined and prepared to get involved with equipment. This has helped me with my job and my hobby."

Scrapbook 'not viable' shock

SCRAPBOOK will not be viable in the mid 1980s as it is. That was the startling message from a director of the firm that markets it at the inaugural meeting of its user group last week.

Dr Keith McKenzie, a founder director of Triad Computing Systems, outlined plans to improve the seven-year-old Scrapbook system which was developed at the National Physical Laboratory to support the production, storage, retrieval and printing of shared personal text files on a minicomputer and to exchange documents and messages between users.

But the improvements would come slowly, he said, because the development costs could easily outweigh the profit — unless someone cared to pump in some development funding.

However, the system was currently the best that could be bought.

Tactical

A short term tactical move would be to re-write the system to run under the RSX11M Plus operating system on the Digital Equipment PDP-11 range, instead of under IAS as at present. Later it should move to VMS on the Vax 780, which was the machine of the 80s, he thought.

At the same time the limit to the number of terminals that could be logged on at once should be overcome by adopting a data-driven structure in place of the current process-driven structure which made heavy demands on the table space in the operating system.

Transaction processing systems used for airline reservations had data-driven structures, enabling them to support large numbers of terminals.

A local ring network would be very suitable for use with Scrapbook and an off-the-shelf system would probably be adopted within the next 18 months.

Implementing the word processing part of the system on an intelligent terminal was overdue and a form filling capability and data validation could also be added to such a terminal.

Commercial DP should be integrated into the system, such as arithmetic capability, a Cobol interface and better database management to enable retrieval by keyword of strings or blocks of text.

The overall aim was to make it an even more generalist system that would help to run an office, rather than just doing a collection of jobs. This would apply to all computing facilities by the 90s, he thought.

Scrapbook was developed on a CTL Modular One and Triad bought the exclusive licence to sell it in 1975 after talking to the development team for two years.

It was written in BCPL and has had modules added to it in Coral. As well as being transferred to the PDP-11, it has also been transferred to a Siemens machine for the EEC Commission.

Ahead of time

It now costs £29,500 for the basic package, but it still only has eight user organisations, enabling Triad to break even on it. Managing director Tony Hardcastle puts it down to being ahead of its time, as well as to mistakes in marketing methods.

The next meeting of the user group is planned for spring, 1981, at the Royal Military College of Science in Shrivenham, Wilts, under the chairmanship of Donald Weald, of the National Water Council, a user since 1976. Triad expects to sell around four or six systems this year and only slightly larger numbers into the future.

Teletext meeting

THE National Union of Journalists is to hold a public meeting on Monday, October 27 on new technology to which anyone who works with viewdata, Prestel or teletext is welcome to attend.

The aim is partly to get new members and to put the union's views on technology.

The venue is the Sir Christopher Wren pub, Paternoster Square, London EC4 and the meeting will start at 6.30 pm. Further details are available from the union's technology officer, Mike Smith on 01-278 7916.

First ME29 in Zimbabwe

HAVING cut all ties with its former subsidiary in Southern Rhodesia after UDI, ICL is back with a bang in the new Zimbabwe. It has 160 people working there and has already installed the first ME29.

Customer is the Agricultural Finance Corporation in Salisbury, which previously used a 1903A at a bureau. It is now extending credit to peasant farming and its customers have grown from 8,000 to 23,000 this year.

Users must help with IC design

Roberts

USER industries will have to involve themselves in the design of future advanced semiconductor devices if they are to reap the full benefits of the technology. This was the view expressed by Derek Roberts, director of GEC Hirst Research Laboratory.

Speaking at the IEE conference on LSI and communications, he said the semiconductor industry could not be expected to make the best design decisions in, for example, implementing complex signal processing devices for use in communications systems.

The telecommunications industry would have to discuss its requirements with the semiconductor industry on the basis of knowledge of the trade-offs between design cost, manufacturing cost and performance.

After a past in which manufacturing costs had been the dominant consideration, he said, the next 10 years would see design costs become dominant for many new devices as the greater amount of circuitry on board made them increasingly specialised.

A divergence would appear between devices engineered with a modest performance to save on design costs and obtain good yields and devices pushed to the limits of the technology to gain the highest possible performance.

Invention

The latter he jokingly christened VHPSICs, pronounced vipsics, for very high performance silicon integrated circuits.

He added that he could not believe that the microprocessor was the last great invention in integrated circuitry, although if he knew what the next one was he would not be working for GEC.

Roberts raised a laugh when he said that the industry did not give a damn about inflation, it kept on slashing its prices — and a few years later it slashed its costs.

Six-man systems house's PAYE bid is based on micros

A SIX-MAN systems house has entered a bid for the Inland Revenue PAYE system based on a network of micros. Damian McDevitt, a director of London-based MML, believes his firm's bid would stand a very good chance of winning if rationality rather than politics governed the choice.

MML's proposal comes out at £53 million, an expected saving of around £100 million. It is based on the idea of processing being done and files being held locally, as they are at present, and makes use of two types of processor linked in a four tier network.

There would be one central office, 32 regional offices each coordinating 32 local offices and in each local office five work units with four terminals attached to each. This gives a potential total of 20,480 terminals.

The processors put forward are the Z80-based Digital Microsystems DSC-4 for the work units and management unit in the local offices and the bit-slice based Hex-29 16-bit mini from the same US company in the central and regional offices.

Minimised

McDevitt argues that not only would working methods change less under his firm's proposal, but expensive communications costs would be minimised, tax inspectors would retain responsibility for their work and their staffs and the Big Brother threat of a huge central database would be avoided.

The system would be easier to install because it could be tried out in a couple of offices before being repeated identically through all the others at whatever pace was most desirable.

Maintenance would not be a highly specialised task with a small team learning slowly and then becoming hard to replace, but a simple system of duplicated components resistant to failure and thoroughly understood.

Manufacture would not be a problematic process of gearing up and then winding down after production when no other comparable system was needed.

The mainframe solution would be the biggest real time system ever built commercially, McDevitt said, and not only was there no need for it, but it would bring more problems than it solved.

ICL was understood to have sought financial assistance just to run a simulation of 20,000 terminals accessing a mainframe earlier this year, when the procedures used by tax offices were very simple involving looking up files, carrying out low level arithmetic operations and updating a database.

Bill to kill US export controls

RESPONDING to recent controversy over US exports of computers to the Soviet Union, Republican senator Jake Garn (Utah) has introduced a Bill in the US Congress to scrap the US Commerce Department's office of export administration that controls and monitors US exports.

Garn recommends the establishment of an independent Office of Strategic Trade (OST) to carry out this function instead.

He added that his Bill would prevent incidents akin to the Kama River fiasco early this year, when lorries manufactured at the Soviet Union's Kama River Plant, which uses IBM kit, powered the recent Afghanistan siege.

Hazeltine release

HAZELTINE's Executive 80 terminal family is being introduced with two models. Model 20 costs £800 and is a buffered terminal featuring a set of highlighting and formatting functions. An extra £100 buys the Model 30 which has additional transmission modes, paging and data validation.

PEOPLE and EVENTS

Data Logic MD is new CSA president

THE PRESIDENT of the CSA (Computer Services Association) for the coming year has been elected. Alan Thomas, managing director of Data Logic, succeeds J. G. Donaldson.

Thomas joined Data Logic in 1970. He became chief executive in 1972, and has seen the company's annual sales rise since then from £250,000 to £20 million. He negotiated the sale of Data Logic to Raytheon, an American multinational, in 1977.

A prizewinning Fellow of the Institute of Cost & Management Accounts, Thomas is also a Chartered Engineer and a Member of the Institute of Production Engineers. Thomas specified his goals for the CSA in the coming year, including more active member participation, increased market awareness, and the establishment of an industry training board with the backing of the MSC.

G. M. R. Graham, chief executive of the Computer Services Company within the Business Intelligence Services Group was elected vice president. **P. N. W. Merrick**, of Peter Merrick Associates, was re-elected as honorary treasurer and secretary for the coming year.

Pictured left is Nick Faldo, who won the NCR National Long Driving Golf Championship with a drive of 306 yards, 1 foot 9 inches. He won awarded £1,500 and the Golf World trophy. The trophy was presented by Rex Fleet, managing director of NCR, the championship sponsor. The Championship is organised by Golf World, in aid of the Golf Foundation.

ICS staff run for charity

A TEAM of runners from ICS Computing in Ireland has completed a charity marathon run from Fairhead in the North, to Mizen Head lighthouse in County Cork.

The 410 mile relay took 52 hours 52 minutes, with the team running day and night. The 25 runners, from the Belfast, Dublin and Cork branches of ICS, included deputy managing director Nelson Miller, who according to the company was the "driving force" behind the run.

The charities to benefit from the exercise are the Arthritis and Rheumatism Council and the Irish Society for the Prevention of Cruelty to Children. The fund will remain open until October 22, and if you wish to help ICS reach its £5,000 target, donations should be sent to ICS Charity Fund, Queens Road, Belfast BT3 9DT.

Kate Whittaker has been appointed associate director of MEPR. She was previously in charge of press relations with Centrocles.

Dave English has left Data Recall, where he worked as a programmer in the software department, to research the architecture of multi-instruction multi-data computing systems at the University of Newcastle-upon-Tyne.

Glyn Watkins has left Robin Hills Systems to become systems analyst for the Western branch of Redifon Computers. Also joining Redifon is Tony Fairfoot, who has been appointed senior lecturer at the training centre in Crawley. He was formerly educational consultant at Control Data.

Heading the new terminal division of Rair, is former Computer Weekly salesman Lloyd Collins. «Collins was responsible for the growth of the microcomputer exhibition, Microsystems, run by IPC.

John Millard is manager of the London insurance division of BIS Software. He was previously manager of the company's office in Hong Kong.

Bob Daniels has been appointed senior sales consultant at Logabax. He joins after two and a half years with Data General

Office of the Year Award

ENTRIES for the Office of the Year 1981 Award are now invited. Organised by the Institute of Administrative Management, the competition is aimed at users of the office, those who have responsibility for providing and using the accommodation. It is concerned with the office interior, rather than the shell itself.

Judges are looking at three main factors: the way in which the office accommodation requirement was analysed and the extent to which the finished result provided an acceptable solution; the quality of the working environment which resulted; and the cost effectiveness of the project.

The Award takes the form of a brass wall plaque bearing the title of the award. It is restricted to offices in the UK of completed design, which were occupied for the first time between January 1 1977 and December 31 1980. Closing date for entries is January 31, 1981, and the entry fee is £100.

For further information contact Jon Bussey, The Institute of Administrative Management, 205 High Street, Beckenham, Kent. Tel: 01-658 1071.

Board increases

THE BOARD of directors of Triumph-Adler AG für Büro und Informationstechnik has been increased from 12 to 20, and among the people recruited to the board are two specialists of the information processing industry.

They are Heinz Schlger, chairman of the management board of Datev (data processing organisation of tax advisors) and Eugeoe White, chairman of Amdahl.

Bob Lindom has changed his position as support manager for the Southern branch of Redifon Computers, to Northern Regional support manager for the company.

CAP-CCP's London industrial branch has recruited three specialists. Steve McCathy has joined from Mara Confectionery as senior consultant. Les Buckle joins as specialist in inventory control, materials requirement planning and shop floor scheduling. He was formerly with Eschmann Bros and Walsh. Finally, after five years with Marconi Radar, **Peter Holliday** joins as a designer of real-time applications.

Harry Richardson has been appointed executive vice president and general manager of Arbat Systems, New York. Before joining Arbat he was vice president and senior operations officer with the Chemical Bank's International division.

David Paynter has joined Burie Computing Services as marketing services manager. He was previously with Dateskil, working as technical marketing manager for information systems.

New locations

DATAPRODUCTS corp has opened a new 200,000 square foot facility in Dublin, Ireland. It is situated 12 miles from Dublin International Airport, and will increase the area of the present facility by about 70%.

KIENZLE Computers has opened an office at Tolworth Towers, Third Floor, Law Rise, Ewell Road, Surbiton, Surrey. Regional manager is **Michael Jesologa.**

TELEPRINTER Equipment has established a Northern area service centre at 6-8 Wrigley Street, Failsworth, Manchester. Tel: 061-681 7111. Heading the operation will be Martin McDeath who has been transferred from the company's Tring headquarters.

Aric Sebecter has joined Compsh as project manager of the 2D Graphics Group. He was previously a research assistant in the Department of Engineering at Cambridge University. After joining from Cambridge is Tapan M. who becomes project manager, mechanical engineering. **Dave McGinley** has been appointed software development engineer, industrial engineering. He was previously with Xerox Palo Alto as project leader on the London Transport routefinder programme, and as consultant on computer and microprocessor applications.

Liveware File

by Don

DIARY

OCTOBER 21
"Exhibition for local commerce and industry. Hinckley College FE, Hinckley College, London Road, Hinckley, Leicestershire.

OCTOBER 21-22
European technology update. CAS The Yankee Group. Regal House, Lower Road, Chorleywood, Rickmansworth, Hertfordshire.

OCTOBER 22
Seminar. Informatico financial applications products. Informatics. Bristol. Tel: 01-831 6715.

OCTOBER 23
A bureau within the company. Stan Mayn. IDPM West London to Oxford branch. Grand Metropolitan Information and Processing, Wyvern Way, Rockingham Road, Uxbridge. 7.30.

Electronics office. R. A. Smith. IDPM Essex branch. Philips, Elektra House, Bergholt Road, Colchester. 8.00.

OCTOBER 28
Meeting. Information technology in the UK in the light of the ACARD report. Speaker: Reay Atkinson, Under Secretary of Information Technology Division of DoI. British chapter of ACM. BCS headquarters, 13 Mansfield Street, London W1. 6.30.

COMPEC 80 will take place from November 4-8 at Olympia, London. The exhibition is organised by IPC Exhibitions and sponsored by Computer Weekly, Data Processing, Systems International and Practical Computing magazines. Practical Computing will also sponsor Microsystems at Compec 80 will display computers, peripherals and systems, and include for the first time an IBM UK stand. Among IBM's exhibits will be the 3101 display terminal.

Further information about Compec 80 and Microsystems 81 can be obtained from Glyn Hipwell, Tel: (01) 261 8894.

Northern hears voice of salvation

INTEGRATING voice and data transmission will be the basis of Northern Telecom Systems Corporation's strategy for the office of the future, but it will not happen all at once although the technology is ready for it.

NTSC is the result of the merging of Sycor and Data-100 after they were acquired by Northern Telecom, itself the manufacturing arm of Bell Canada, the Canadian telephone company.

NTSC president Marcelo Gumucio said last week he was testing a product in his office that integrated data and voice, but he thought few customers were ready for it.

His firm's approach, he said, was to keep its existing customers, which included most of the largest multi-nationals, by speeding up performance, improving architecture, enlarging storage capacities and adding communications capability. Then a way would be found to migrate them to the new integrated voice and data products.

Growing

Two-thirds of its sales were to existing customers, split evenly between the old Data-100 key-to-disc and remote batch terminal products and the more advanced Sycor distributed data processing systems.

But the distributed data processing market was growing at 30 per cent a year, while key-to-disc and remote batch markets were only growing at five per cent a year and would stop growing in a couple of years.

Difficult

Merging the two firm's into Northern Telecom two years ago had proved very difficult, because they were entrepreneurial while Northern Telecom was large and well established, their activities were widespread, many managers left soon after the takeover and Northern Telecom knew little about the distributed data processing market.

Reorganisation had been completed in August, when 400 out of 5,300 staff had been sacked from the US operation and NTSC split off from the part of Northern Telecom which made the SL-1 digital PABX, and the research departments of Sycor and Data-100 had been merged with Bell Northern Research.

Components

Bob Lane, NTSC vice-president for Europe, warned others against the dangers of mergers and said that he had never known an easy one in 20 years' experience of large companies.

He added that the telecommunications industry in the UK and other countries had to learn the lesson Canada had: that producers of high technology products needs a component industry behind them.

France and West Germany were trying to build them and Japan was a major force in manufacturing, but components were effectively only designed in one country in the world, the US.

NTSC was glad of its proprietary chip factory in San Diego, he said.

THE QUIET REVOLUTION

Intelligent controller

AN intelligent controller that will interface between any micro and minicomputer based on the Intel Multibus system or the S100 bus and up to eight Winchester disc drives has been developed by Hove-based Mator Systems, part of the Mator group of microsystems development companies.

Called the Chichester disc controller file management facility, it will interface to eight inch BASF Winchester drives, eight and 14-inch Priam drives and eight inch Micropolis drives.

For £995 a unit and £680 per unit for 200, the interface forms a file management system with the microcomputer and the discs.

The NCR 2950 intelligent terminal for information processing.

NCR's info processing terminal

NCR has developed an intelligent terminal called the NCR 2950 which can be user programmed to handle a variety of information processing tasks. It can also provide extensive cash control, auditing and security features.

Expected to be available at the end of this year, the 2950 can be standalone or used on line. For about £1,000, it comprises the system with 60K bytes of memory, two printers and a cassette unit. The first application for use on the terminal is remittance control.

All 105 keys on the keyboard are programmable to provide over 300 functions, symbols or pre-set constant values. The user can programme 27 keys using the NCR Basic language to provide 108 special functions or procedures.

An NCR Basic interpreter will be available for a one-time licence fee of £150, and program development tools for £420. Options like optical character recognition readers and asynchronous and hi-synchronous communications are scheduled for 1981.

ME29 a hit Down Under

THE ICL ME29 is a hit Down Under. Associated Pulp and Paper Mills, at present using an ICL 1902T, a 2904 and two DEC PDP-11/34s is replacing them with a £1 million network of eight ME29s around a central 2956 in Melbourne.

It has four paper mills in Victoria, New South Wales and Tasmania and will link the computers using the new ICL Information Processing Architecture.

The medium sized ME29 is also reported to be doing very well for ICL in South Africa, where 28 units have been sold since the machine was introduced in March.

£450 daisy

A LOW-COST daisy-wheel printer has been developed by Triumph-Adler in West Germany and may be available in the UK in time to be shown at Compec next month by Adler OEM division.

First models will print at 17 cps and are expected to cost about £400 to £500.

1984 is coming a year early, says Parslow

"WHEN Orwell predicted 1984 as the year of totalitarian rule, he was a year late." So said Brunel University's Professor Bob Parslow at an international gathering of DP specialists at Friday's closing session of the IKD in Berlin.

The IKD – International Kongress für Datenverarbeitung – is a biennial gathering of DP experts which discusses world topics in computing.

This year it dealt with "the mastery of information technology", addressing such subjects as computing in the third world, the role of women in DP, and how the world of work would be affected by technology.

Unrest

Parslow expanded on his theme about accelerating unemployment and the resulting unrest in a talk entitled "Will democracy survive technology?" Although some dismissed his predictions as scaremongering he pointed at present developments which when linked present a disturbing picture of the future.

"Within minutes of stopping you for a driving offence, a policeman could have information about criminal record, medical record and even political affiliations," he said, pointing out the danger of large databases.

Danger

"If we include the monitoring of communications and the control of news media, we already have the means of establishing a 1984 regime."

He went on to demonstrate that this could happen by 1983, citing the evolution of microelectronics, robotics and office automation as threats to the white collar jobs of millions.

Obsolete tasks like shorthand and production line assembly would give rise to 20% unemployment by 1983 – and that was the most conservative estimate, said Parslow.

That would lead to an increase in vandalism and more activity from political extremists, which in turn would unleash a backlash of repression and a totalitarian regime, he argued.

The breakdown on law and order could come very quickly, he warned, and pointed at the riots in Miami and Bristol as proof. "A young, male, unskilled black in Birmingham already knows he has almost no chance of getting a job while he's at school. You can't tell me that in those circumstances, such civil unrest is merely coincidence," he said.

UK delegates, however, were relieved to find that Prof Parslow's own information retrieval system seemed to be playing up. His next example, gleaned from a German (could it have been East German?) paper was that rioting miners on a protest march from Cardiff had wrecked Eton.

Exaggerated

It turned out they had grossly exaggerated a fairly minor demonstration by a group of unemployed at the Top People's public school.

Parslow ... Orwell is a year out!

Warning over US info domination

THE danger of US domination of the supply of information world wide, an issue hitherto raised mainly by Third World countries, is now causing concern among the developed nations. It occupied a major part of the deliberations at the high-level conference of the Organisation for Economic Co-operation and Development (OECD) in Paris last week.

However, the use of computer and communications technology to transfer skills to the Third World was also put forward to show the positive side of technical developments.

Much of the meeting was taken up with consideration of cross-border data flow and privacy issues, in the light of the OECD's Council of Ministers' recent approval of guidelines (CW, October 9). The OECD's computers and communications working party is continuing to look at the matter, and was urged to look more at corporate data and less at the personal side, where the concentration has been hitherto.

The US was defensive about the question of information domination through its databases and news services, and expressed concern over the issue of intellectual property rights, especially to do with patents and the copyrighting of software.

The attitude of the US towards data protection continued to provoke disquiet among officials dealing with the issue in other countries. The French delegation said that the US would have to modify federal law that at present discriminates against foreigners.

NCCL objection to sale of post codes denied

REPORTS in the Press that the National Council for Civil Liberties was objecting to the sale of lists of postcodes have turned out to be untrue. Patricia Hewitt, NCCL General Secretary, has been quoted as describing the sale of the lists by the Post Office as "a gross infringement of privacy", but she told Computer Weekly, "I never said that."

Hewitt pointed out that such an objection would make little sense since postcodes are already published in electoral registers. Concern had been expressed that lists of addresses with postcodes could be used for "redlining", that is, designating the inhabitants of certain areas as bad credit risks.

Regarding the prospects for data protection legislation in the UK, Hewitt said she was expecting a "fairly positive" statement on the subject from Home Secretary William Whitelaw at Christmas.

Objections to the setting up of a new quango, the Data Protection Authority, were still very strong within the Conservative Party, she said. Other forms of remedy for the public were being considered, she said, but many of these seemed to her "fairly pathetic."

Nascom buyer

PETER Mathews, director of Alltech Technology Initiative, has agreed to purchase the assets of Nascom Microcomputers from the receiver, W. H. Cork & Gully, in order to create Nascom International which will trade under the original name.

Just the card, brothers!

IN a bid to speed up the issue of membership cards, the Union of Communication Workers is using its IBM System 34 to print on to PVC cards, supplied by GBS Systems, which are fixed two abreast to continuous stationery.

Under the old system, membership details were punched on to cards from printouts supplied by the Post Office. The data was processed and traditional union cards were printed, inserted into wallets, sorted and despatched to the branches.

Under the new system, which will be for members paying by deduction from their pay packet, the cards will be printed automatically after having verified membership status. The system will be able to produce sets of cards for complete branch. These will then be sent in bulk and normally distributed by branch treasurers.

At present, the new system is being run in but all the new cards for the 190,000-plus members on check-off should arrive during the next few months.

Bright future foreseen for ICL with new hardware/software

ENTHUSIASM for ICL's newest products, both hardware and software, was the keynote of the ICL 2900 Club meeting last week, and Basil Cousins of Computel was second to none in expressing it.

"The VME/B operating system, the CAFS hardware database, the ME29 small computer and Information Processing Architecture will be the basis of radically new services from Computel," he declared – and went on to recall that last autumn he posed seven challenging questions to ICL (CW, November 22, 1979).

"I am happy to say that after a year, the company still has a bright future."

His first question has been on improvements in the resilience and throughput of VME/B.

"Our technical people are now happy with VME/B. In September we had an uptime in excess of 99% with the 5X37 release – and uptime is going to be particularly important. Users are becoming less and less tolerant of breakdowns and errors, and in communication systems even 99% uptime will be far too low."

2900 CLUB

reports by Tim Palmer and Donald Kennett

You must be adventurous in using your resources

"USERS have to make the most effective use of their costliest resources – staff and hardware. If you are unadventurous and simply continue running an orange 1900, you will lose staff."

That was the unequivocal message to the ICL 2900 Club from Keith Wattam of Gresham Computer Services.

An orange 1900 is of course a 2900 running under DME, and Wattam acknowledged that users were wary about moving from George 3 to VME/B.

"Users are beginning to want to move to native TP Option, but they have doubts about performance. It is rather like Liverpool versus Southampton: Liverpool is safe and solid and a little unexciting; Southampton has flair and promise but is unproven.

"But new Kommfy is surprisingly stable, and TP 200, which will give all the facilities to design and develop applications is just around the corner.

"I know that development staff do not like writing in Cobol, but you have to convince them that 2900 is a high-level machine and so uses high-level languages," he declared.

His next question had been on communications excellence, and he reported that with version two of the Kommfy line handler, communications excellence was well on the way.

"VME/B supports an impressive number of terminals with TPO," he declared. "But we have to judge communications excellence on new criteria. It is no longer simply a matter of efficiency, resilience and good transaction processing: we have to be satisfied that we can shape our applications effectively. Information Processing Architecture changes the whole way we view VME/B: it provides the structure on which we can build things like electronic mail."

With its promised support for attachment of "alien" – non ICL – systems, Cousins saw IPA as a great liberator.

"My next question was about when we could expect a full range of 2900 applications packages. IPA makes the question much less relevant. If we can have co-operating systems, we do not need such a large number of hardware-dependent applications packages, and they could bring us the liberty that was promised with high-level languages, but did not happen.

Unstructured

"IPA should allow us to transport the problem to the solution, and to look to a variety of small software houses rather than to ICL for a particular solution."

He was confident that ICL was working towards his requirement for larger tape and disc units and noted that the range of ICL peripherals was expanding.

"But the volumes for database and text applications will be gigantic and we need an easy way to handle all this information. According to IBM, 90% of all the databases which people are planning will be unstructured text.' The implications for hardware and networks are enormous.

"On the question of dual DME systems, we are on the threshold of implementing a dual 4-megabyte 2960 system, and it should be up early next year; we will be attaching ME29s and CAFS to it."

Cousins also highlighted ICL's viewdata software on ME29.

"The annual cost of a terminal today is about the same as the annual cost of employing a person; by 1985, it will be only 15%. Internal viewdata and British Telecom viewdata are a significant part of this revolution."

Warning to his theme of the burgeoning future, he saw the installation of System X digital telephone exchanges having a major impact on networks – but also foresaw growing problems of management.

"The volumes of text likely to be generated by word processing are enormous: an ordinary person working at a keyboard can produce a million characters in a year, which implies phenomenal overall volume for a complete organisation."

Cousins

Avoid inflexibility that comes with integration, says consultant

INTEGRATION of voice and data transmission may happen eventually, Tony Gunton of consultants Butler Cox told the ICL 2900 Users' Club last week, but it is not really the issue.

Economies and improved levels of service were the main reasons for having private networks and although some of their functions might be displaced by public packet networks, AT&T's experiences and problems with its proposed ACS packet switching service should serve as a warning to PTTs that instant networks were not within the state-of-the-art this decade.

Only at the desk would it matter whether voice and data could be delivered side by side.

Even for different data services integration should be avoided; co-operation was preferable to integration. Integration led to complexity which was a form of inflexibility and should be avoided.

In using viewdata for private retrieval services, protocol conversion routines should be used in preference to integrating the viewdata into existing database systems.

Weakness

Gateways to the telex network were desirable because of regulations against commercial message switching services and anyway the real weakness of telex was at the local distribution stage where, after travelling from London to Manchester in minutes, a message took two hours to reach the right desk.'

Another principle to be borne in mind in planning corporate communications was to plan to migrate to public networks, because although packet switching was currently only attractive for certain applications well suited to it, public networks must in future become more cost effective than any in-house solution.

Autonomy was a major aim of private networks as they declined in relative importance. A statistically multiplexed private network could squeeze in new users at short notice rather than waiting for a new leased line from a PTT, because new needs always arose unpredicted.

Local and wide area networks should be recognised as being different in nature and developed separately as far as possible. User pressures should be backed as PTTs and corporations struggled to replace ageing networks, because no supplier was giving a clear lead.

Plan to aid the Third World with UK expertise and support

HIGH standards of ethics and practice must be applied to the computer profession if society is to be reassured that it is not threatened by advancing technology, said the new president of the British Computer Society, Frank Hooper last week.

Speaking after his inauguration at the BCS annual general meeting in Birmingham, Hooper said: "The use of microcomputers, word processors and the ultimate emergence of an electronic environment such as the automated office is fraught with danger.

"The technology is outstripping the capability of people to cope with its application with the degree of confidence and ability which the ordinary men on the Clapham omnibus has been led to expect."

He added that the need for privacy was causing great concern, and that all those working with computers should try to conform to codes and ethics of practice.

Hooper, a general manager's assistant at Barclays Bank with responsibilities including computer research and development, succeeded Julian Bogod of ICL.

Bogod announced he is taking six months' secondment from ICL to set up a project aimed at channelling UK computer expertise to selected Third World countries.

The meeting approved a 23% increase in membership fees from next May. This will increase the annual cost for a Member from £19 to £24.

LAST week the outgoing president of the BCS, Julian Bogod, unveiled the first practical details of a novel project: to channel UK computer expertise to selected Third World countries to the benefit of both recipients and British export figures.

He revealed he is taking a six-month secondment from ICL to work out how to apply proposals he made in a BCS lecture last year. These envisaged a special council being set up to link the industry, the BCS, the universities and various other national bodies with a particular country which needed both the power of computers and the help in building its own computer base.

Bogod has some insight into how such a council might work. In January he was in Egypt for ICL organising a conference for the country's NCC.

There he met the project manager hired by the United Nations to assist the Egyptian Foreign Ministry to computerise all its diplomatic documentation. The country had drawn on DP aid allocated to it by the international community via the UN, and the project manager's job was to identify those companies worldwide which could assist the Egyptians in building their own store, record and retrieval system.

The upshot was that the manager asked the UN for Bogod's help, the UN contacted him, and he found the people in the UK industry who could provide it. Among them were a private consultancy, hardware suppliers and the British Library (which has extensive experience of microform records).

Computer aid to developing countries is usually channelled either through UN agencies, or distributed bilaterally.

Both types have their drawbacks. Countries are usually interested in supplying turnkey systems, which Bogod points out do little to help the recipient plan a strategy for the introduction of computers across its economy, and still less for the development of the right expertise across a sufficiently large number of local people.

Aid from the UN is, in turn, exceedingly difficult for a developing country to organise. As Bogod says: "I don't know anyone who knows how [UN agencies] work. They say they work one way, but they don't."

Discredited

Another channel is via the Intergovernmental Bureau for Informatics, but this lacks the backing of crucial states (the UK, West Germany and the US, for example) and is widely discredited for being too political.

Bogod does not reject any of these methods – indeed his job in seeking to establish a co-ordinating body for the UK industry will involve establishing contact with UN agencies, the IBI and the like.

But he does feel there is a need for a body in Britain which will take the initiative in giving computer aid. The government has the right long-term approach but is not equipped to take the lead, he says, while companies are driven by short-term profit motives.

Indeed it was a crucial part of his proposal last year, for a body he called the Council for the Application of Computer Technology for Development, that it should have interests wider than trade. He believes strongly that the gap between rich and poor parts of the world – the North/South divide – must be bridged. And he is adamant that a council like the one he proposed, which he suggested should be under the auspices of the BCS, must clearly reflect these sentiments to have any chance of success.

That will be when (if) it is established. For the next six months, Bogod is charged with writing a report for the Department of Industry on *how such a scheme* might work and how much it would cost. He must also start knitting together the myriad bodies within government, the UN and other international agencies, the industry, and elsewhere which might have a part to play.

At the end of six months he hopes to have pledges of support from the industry, understood how aid might be co-ordinated through some central agency (which he now feels need not be quite so quango-like as his earlier Council for the Application of Computer, etc) and made a start on identifying which countries would most benefit from its assistance.

He is almost uniquely qualified within the UK industry to do this. As strategic marketing manager within ICL's former international division he has the right international experience. Outside ICL the industry has limited links with the Third World in supplying hardware, he notes, and very, very little in software.

As president of the BCS over the last year he has also helped found the similarly independent Nigerian equivalent, the Computer Association of Nigeria. It is the latest in a stream of like bodies (usually within the Commonwealth) helped in this way. And he now has experience of a real project in Egypt.

So far support has been forthcoming. Apart from his salary, ICL is also meeting a portion of his travelling costs. The Department of Industry has chipped in with £2,000 towards travel, and the BCS is providing an office with secretarial services.

If everything goes smoothly and the new aid body is set up, then Bogod currently envisages it working something like this:

1. Identify countries needing assistance (probably from the Commonwealth though not necessarily);
2. Identify the specific assistance needed and allay suspicions of purely commercial motives);
3. Interface with both national and domestic aid donors; then give support services of a general kind, like help with training, etc.

What it should then develop in the UK, says Bogod, is a variety of "skill-banks" – those companies and individuals which can supply particular assistance. That should make it easier for other recipient countries to be introduced and given the right type of support.

Before then, however, a variety of people and institutions has to be convinced of the project's worth. They include the government.

This week he is at IFIP in Melbourne, taking the first steps with those international contacts he believes essential to the project's success. When he returns he will be looking for promises of help within the UK. He is determined to get them for what, last year, he characterised as "an unarguable case for the establishment of a major UK initiative in support of the developing countries and their attempts to narrow the computing gap."

Frank Cooper of Barclay's Bank giving his acceptance speech as new president of the British Computer Society as its annual general meeting in Birmingham last week. He took over from Julian Bogod (also pictured) who has been seconded from ICL for six months to develop his plan for UK computer aid to the Third World.

Last week Tokyo was the first city outside the US and Europe to play host to the world congress of the International Federation of Information Processing Societies (IFIP). As a location it was a disappointment only in that the conference and exhibition facilities were hardly any different from any well-run canference event in the West.

There was very little in the way of oriental exotica, apart from self-conscious Japanese cultural offerings, and the Sunshine City shopping, hotel, cultural and conference centre where the Tokyo event was staged was virtually indistinguishable from the concrete and glass Palais des Congrès in Paris which will accommodate IFIP in 1983.

The conference papers were printed in English only and all the conference sessions were in English, even when the speaker and most of the audience were Japanese. Thus the dominance of English as the international language of information technology was thoroughly underlined.

KEITH JONES attended IFIP 80 and reports here on some of the sessions.

Cool look at DBMS experience

A PANEL session on very large databases in the 1980s was dominated by a discussion on the acceptability of database management systems in general. The main subject matter was a report just completed for the EEC Commission and for the four biggest member countries, which includes a survey of user experiences.

The survey showed that users were not all certain that a database management system was the best approach to information handling, and also revealed that users had enjoyed no significant reduction in development and maintenance costs by setting up a DBMS.

Data sharing, supposedly one of the big attractions of a DBMS, was only practised at about a third of the sites that the survey looked at, and the practice was found to be virtually non-existent in manufacturing companies, where the various departments jealously guarded their own data.

Unrealistic

Indeed, one of the main conclusions to be drawn from this report is that an all-embracing DBMS, providing a pool of data which can be dipped into by all departments in an organisation, is an unrealistic concept and simply does not work.

Databases were found by the survey to have had very little effect on the structure of a big organisation, and the database administrator, where he existed, always reported to a manager in the DP department – no higher than that.

A survey of Australian DBMS users, also discussed at the panel session, revealed that DBMS systems were being widely used – but not as databases. Users were more interested in the facilities provided by the DBMS for program development, online processing, file back-up and recovery.

The European survey was carried out jointly by the UK National Computing Centre, and GND in West Germany, Inria in France, and CAR in Italy.

IFIP TOKYO

System to help in dialogue management

THE dialogue generation and management system DGMS helps create and execute that part of an application which sends and receives data from terminals. This is how Eric Carlson of IBM's San Jose research laboratory defined an experimental system intended to aid the applications programmer with dialogue management in the way that a DBMS aids file management.

Carlson discussed the survey carried out by the San Jose laboratory which found that, on average, 60% of code in interactive applications programs was for dialogue management. The average number of lines of code was a daunting 17,500.

Carlson listed the functions that needed to be supported by a DGMS in an interactive application. The DGMS must describe the display frame format, specify the components that are variables, identify the allowed user inputs, and specify the response logic for each user input.

The data needed by the DGMS to carry out these functions takes three basic forms: format, response and current state data, the latter being the values of local variables and parameters.

For each display the three types of data are described in separate tables possessing a relational data structure and supported by a relational database system.

COMMENT

FOR those Western visitors who speak Japanese or who possess a sound understanding of the Kanji characters that make up most Japanese written material, an exhibition that accompanied IFIP 80 in Tokyo last week may have been more useful than it proved to be for many delegates.

Japanese firms accounted for the majority of exhibitors and most of them were able to offer little or no promotional material or documentation written in English, or other Western languages.

To make things worse, few of the exhibitors had a member of staff with a sufficiently strong command of English to make explanations and descriptions any better than painfully slow and confusing.

But the show's lack of Western appeal was not too surprising given that it was the latest in a series of events held in October every year that have always been aimed at the home market.

Appropriately the most significant new development promoted heavily at the exhibition was the replacement of words in roman letters on word processors and terminals with Kanji characters. Most Japanese dislike, or simply cannot read, Japanese words spelled out in Roman letters, and many have never fully accepted the equivalent Japanese grammatic alphabet.

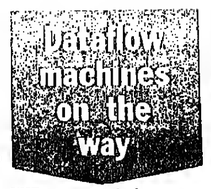
Using Kanji the typical alphanumerics keyboard is replaced by a touch-sensitive tablet imprinted with several thousand characters.

Nippon Electric considers that the 3,500 most commonly used characters are enough for its new word processor, while Hitachi is offering up to 8,000 on Keis – its own Kanji processor for mainframe interaction.

Hitachi's arch-competitor Fujitsu got in first with the Kanji processor JEF-Japanese language Extended Feature – which it introduced last year and JEF was made the overriding theme of Fujitsu's extensive and diverse exhibits at the show.

But Western system suppliers would be unwise to dismiss Kanji processing as being of no more than local interest. Basically the same characters are used by the Chinese – a potentially enormous market. The Japanese are obviously trying to claim that country for their own by offering Chinese customers Kanji processing from the word "go".

Moreover, the software techniques developed for processing in Kanji could be adapted to processing Arabic characters. So the oil-rich, technology-hungry Middle East could also fall into Japanese hands before long.



THE current breed of supercomputers, like the machines from Cray Research, are a technological dead-end and will be superseded eventually by dataflow machines, replacing entirely the traditional Von Neumann architecture.

This was one of the most significant points made in the IFIP 80 panel session which tackled the subject of parallelism in computer architecture. It looked specifically at the dataflow concept, where multiple processors and memory modules are pipelined in a loop and where several loops can operate in parallel.

The panel members included John Gurd of Manchester University, whose team expected to have the hardware of an experimental dataflow machine completed by early next year.

From France, Jean-Claude Sire of the Onera-Cert aeronautics research centre in Toulouse discussed the LAU dataflow system which is working in an experimental four-processor configuration.

Eight Mbyte MOS RAM 'by 1990'

A DYNAMIC MOS RAM with a capacity of eight megabytes, and a static device with up to four megabytes should both be realities by 1990, according to Dr N. Terajima of Japan's Nippon Telephone and Telegraph, NTT.

Dr Terajima presented an invited paper on progress in memory devices, and based his predictions for MOS RAMs on the industry's performance to date, which had seen a fourfold doubling of capacity every three years.

Dr Terajima argued that the scaling down of the length and thickness of integrated circuits to achieve even higher densities would reach a limit in the not too distant future. He quoted 0.005 microns as the insulation limit for the thick oxide layer in an MOS device, and 0.8 as the limit for the channel length of a dynamic RAM.

Making a case for increasing the physical dimensions of the chip, Dr Terajima mentioned a fault-tolerant ROM chip used for storing Kanji characters in NTT computers. It measures 2x3 cm, and incorporates two arrays, each of one megabyte.

Looking at progress in bubble memory devices, Dr Terajima pointed out that bubble storage now cost about 0.5 cents per bit, which made them highly competitive with magnetic drums but would need to improve 100 times for them to compete with discs.

Chinese system language

USERS of Digital Equipment PDP-11 minicomputers may soon be able to write system software in a Chinese system programming language called XCY. The man who led the development of XCY, Professor Xu Jiafa of the University of Nanking, presented a paper on the language at IFIP 80, and revealed that a PDP-11 version was planned in addition to versions for Chinese machines. The team used a modular approach.

XCY is a new language, development having started only last year. There are modules within it for handling real and virtual systems facilities, and others that can be used at the programmer's will. XCY was best suited, be claimed, to writing operating systems.

COMPANY NEWS

City knocks ICL down to 150p

AFTER being poised to break through the 200 pence barrier – equivalent to 800 pence before the four for one split earlier this year – ICL shares have taken a hammering on the Stock Exchange over the past two weeks, tumbling to the 150 pence mark.

Reasons for the fall are threefold. Electronics started to look shaky following the outbreak of the Iran-Iraq war. There are plenty of institutions sitting on satisfactory profits from ICL shares.

And a distinctly bearish broker's note on the company tipped the balance decisively.

The note came from Graham Meek of London and Edinburgh stockbrokers Wood Mackenzie.

He is forecasting a fall in pre-tax profits from last year's £45 million to about £42.5 million, and sees them recovering only to £46 million in the current year. The results for 1979-80 will be announced in December.

Softening

Commenting that he noted on July 18 that there had been a marked softening in the UK computer market from early June, Meek states that the weak trend has been confirmed in recent weeks, and additional negative factors have emerged in the meantime.

"The growth in order bookings has slowed even more seriously than was apparent three months ago."

"This has been despite the evident initial success of the ME29," he adds, noting that the main impact will be seen in 1980-81.

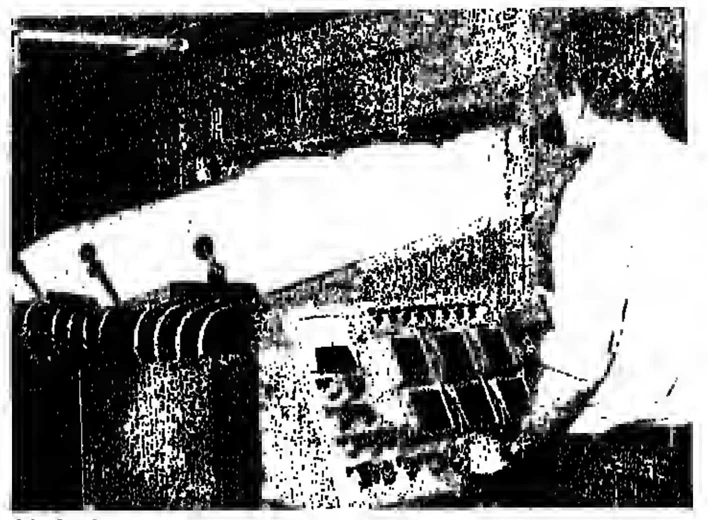
The costs of setting up marketing of the ME29, and of investing in ICL Inc in the US, coupled with pressure on margins from the high value of sterling, will impact profits, he believes.

He also detects a small but significant trend among customers away from purchase and towards rental, both home and overseas. If it is handled by ICL direct, it will lead to an increase in depreciation and interest charges, he says, while if it goes through Computer Leasings Ltd, to a sharp rise in repurchase provisions.

At the end of July, managing director Dr Chris Wilson commented to Computer Weekly that he kept telling investors how difficult things were going – "but the shared keep going up", he said.

On the marketing front, ME29 sales, notably in France, are way beyond forecast and budget.

It was the VME/B operating system and the teleprocessing software, both areas where ICL has been more than usually criticised, which got the plaudits at the meeting.



ACCORDING to company blurb this three web press "can run at speeds of up to 1,500 feet per minute". Not quite Olympic standard, but what it also does, that Ovett, Coe and Wells can't do, is produce 200,000 business forms every hour.

The Standard Check Book company of Midsomer Norton has recently installed the US built Paper Converting Machine equipment at a cost of £200,000. The money was spent in order to expand a 25% share of the UK listing paper market.

Threat to insurance job

EMPLOYEES of the insurance industy are getting worried about the increasing use of computers in their area and especially the invasion of the micro.

Several large companies are negotiating agreements with their staff on microtechnology along the lines advised by the white collar union ASTMS. Norwich Union, Royal Liver, and General Accident have already reached agreement and others are still sorting out the details.

Ernest Lesbirel of NFU Avon and Mutual Insurance explained the concern of insurance workers: "We rely on personal service in this business. But when someone can get a quotation at the flick of a switch what happens to our jobs?"

Tandem aims for $200m turnover

FAIL-safe minimaker Tandem is targeting a $200 million turnover for the financial year which started October 1. Its provisional figures for 1979-80 are not out, but should show a profitable turnover of about $105 million.

Tandem remains a one-product company, but is so far ahead of the rest of the field that its situation looks safe for the short and medium term: Digital Equipment announced a dual processor version of the PDP 11/70 in the US 18 months ago. Called the PDP 11/74, it was withdrawn shortly afterwards.

There are two alternative multiprocessor minicomputer systems and both are European: one comes from French minimaker SEMS, which has devised a way of interconnecting its Solar minis, and the other comes from Ferranti.

However, both systems suffer from the fact that they were done as afterthoughts, whereas Tandem set out to design a fail-safe multiprocessor system with a single copy of the operating system.

Designed

Tandem also designed the software first and then designed suitable hardware to run it; the success of other companies like Prime which started with software suggests that this is the ideal approach.

This has not prevented Tandem being locked in a fierce battle with Ferranti for an important UK Post Office order.

The Ferranti solution, called Argus 700 Series 2, is said to be a more flexible system for adding processor power than a true multiprocessing system, allowing up to three of the small 700F minis to be attached to one of the large 700G minis via the memory bus.

Tandem's biggest customer is the New York Stock Exchange which has 40 processors configured in several different systems.

Gandalf signs two distributors

CANADIAN data communications manufacturer Gandalf has signed up distributors in Saudi Arabia and Greece and expects the deals to earn it $100,000 in the first year. The Saudi Arabian agent is Mesco, based in Riyadh.

The Greek agent, Digico, which has previously been selling digital watches, is based in Athens and has no connection with the UK minicomputer maker Digico, which sells its products in Greece through its agent American Technical Enterprises, using the Digico name.

CW SHARES TABLE

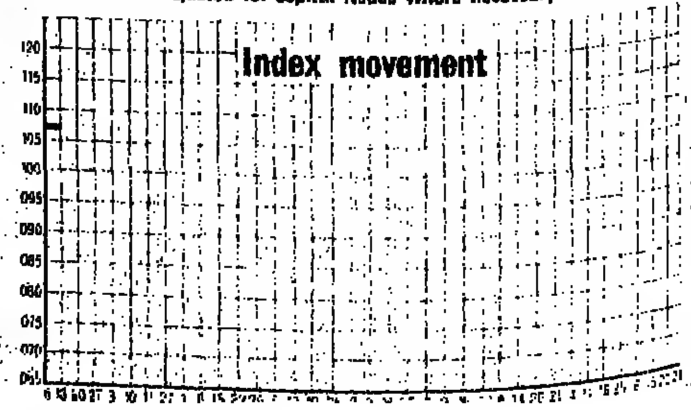
Date: 10/10/80 — Index 104.42 Change 2.18

Pence 1980 High	Low	London Stock Exchange Stock	Pence Price	Chge
615	230	A Comp Tech (25p)	420	-20
66	56	BOC Int (25p)	97	1
43	25	B Bov Kent (25p)	30	1
120	85	Chubb (20p)	55	-2
100	66	Cole (R H) (25p)	66	-7
875	640	De La Rue (25p)	840	+15
180	148	Extel (25p)	166	-2
490	234	Ferranti (50p)	444	3
517	335	GEC (25p)	548	-8
191	115	ICL (25p)	147	-9
81	64	Kalamazoo (10p)	78	1
345	203	Kode Int (25p)	345	-8
270	108	Muirhead (25p)	127	12
357	237	Office & Elect (25p)	311	
470	365	Philips Lamp (Fl 10)	373	-19
265	108	Plessey (50p)	233	-8
178	78½	Quest Auto (10p)	170	-13
347	109	Racal Elect (25p)	314	+2
104	65	Rediffusion (25p)	99	3
374	287	Thorn EMI (25p)	328	-16

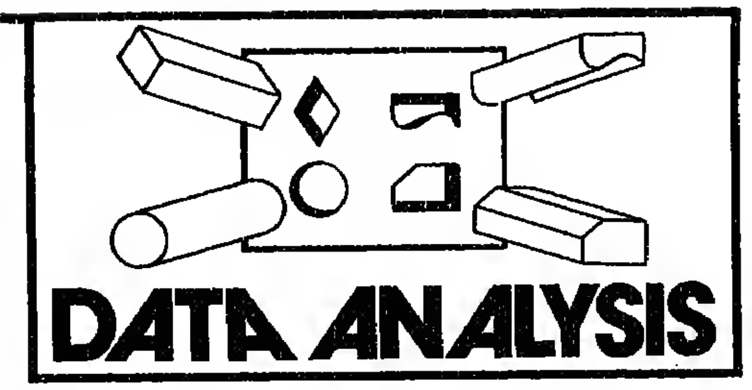
$ 1980 High	Low	US Stocks Stock	$ Price	Chge
34½	16⅞	Amdahl	37¼	+2⅛
31¼	17¾	Ampex	31¼	+8
51	33¼	Auto Data Pro	49⅜	-4
84	62⅝	Burroughs	62¾	+½
27¼	17½	Comp Automation	28	+3½
25½	18⅞	Comp Sciences	24¼	-3¼

$ 1980 High	Low	US Stocks Stock	$ Price	Chge
70	11¼	Commodore	[illegible]	[illegible]
75½	45	Control Data	[illegible]	[illegible]
86¾	61½	Data General	[illegible]	[illegible]
51⅛	41⅛	Datapoint	[illegible]	[illegible]
34½	10⅞	[illegible]	[illegible]	[illegible]
[illegible]	59½	Digital Equipment	[illegible]	[illegible]
37⅛	16¾	Elec Data Sys	[illegible]	[illegible]
18⅞	6¾	Gen Automation	[illegible]	[illegible]
46⅛	29⅛	Harris	[illegible]	[illegible]
80	21¾	Hewlett Packard	80	[illegible]
97⅜	76⅛	Honeywell	[illegible]	[illegible]
[illegible]	52⅛	Intel	[illegible]	[illegible]
75	63⅛	IBM	70	[illegible]
[illegible]	10⅞	MDS (Mohawk Data)	[illegible]	[illegible]
74⅛	9⅛	[illegible]	24	[illegible]
18⅞	11½	Memorex	[illegible]	[illegible]
31¼	23⅛	Modular Comp	[illegible]	[illegible]
67⅛	42⅞	Motorola	67½	[illegible]
42½	11⅛	National Semi	42½	[illegible]
78⅛	53⅛	NCR	[illegible]	[illegible]
84⅛	37	Perkin-Elmer	[illegible]	[illegible]
48⅞	14½	Prime	46	[illegible]
93⅞	61⅛	Raytheon	[illegible]	[illegible]
55¾	47⅛	Sperry Corp	[illegible]	[illegible]
23½	11¼	Storage Tech	[illegible]	[illegible]
45⅞	29⅜	Tandy	[illegible]	[illegible]
72⅛	37⅞	Tymshare	[illegible]	[illegible]
133⅝	86½	Texas Instruments	[illegible]	[illegible]
44½	15½	Wang Lab B	[illegible]	[illegible]
16⅞	9⅛	Wyly	[illegible]	[illegible]

The table shows the closing prices in London on Friday and in America on Thursday. The share index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted for capital issues where necessary.



The verbs of the method 'language'



Section 1 – Part 3
of our series describing a systems development methodology

by Ian Palmer and Rosemary Rock-Evans

THE previous article in the series discussed entity types and how to determine them. In this article relationships between entity types will be discussed and the results of the last stage used to determine what relationship types are present.

Relationship types

A relationship is "an association between two or more entities which is of interest to the enterprise".

Anything that asserts or affirms a connection between two or more entities may be thought of as a relationship. The associated entities may be of one or two types, but not more than two.

A relationship type comprises "all the relationship occurrences which fit a given definition".

An example is given in Figure 1 using the hospital system introduced in the previous example.

The relationship type is "Patient has undergone Operation(s)", where patient and operation are the two entity types described in the association.

A relationship type does not denote direction. If one were to draw a parallel between relationship types and language, the relationship type would be the verb and the two entity types the subject and predicate nominative noun. In language these are reversible using a different verb construct (active and passive). In other words we could just as easily have reversed the relationship type to read "Operation has been undergone by Patient" and meant exactly the same thing.

As is implied in the definition, a relationship type can define a type of association involving an entity type with itself.

In Figure 2 an "Inter-entity relationship" is given, which shows such an association, that of a doctor working with another doctor. The relationship types shown in this diagram are:

PATIENT has undergone OPERATION
DOCTOR performed OPERATION
DOCTOR works with DOCTOR

Degree

The concept of degree is an important one, and describes "the number of the one entity type which may participate in a relationship type with another or the same entity type." There are three expressions used when describing degree:

One to one. One entity of one entity type may have that relationship type with one other entity (and only one) of another or the same entity type. A simple example is given in Figure 3. Note the symbol used to denote one to one relationship types — 1:1.

One to many. One entity of one entity type may have that relationship type with one or more entities of another or the same entity type. The example in Figure 1 is that of a one to many relationship type. One patient can have many operations but the converse cannot be true — one operation cannot have been undergone by many patients. The symbol used to denote one to many relationship types is 1:N.

Many to many. Many entities of one entity type may have that relationship type with many entities of another or the same entity type. The example in Figure 2 includes a many to many relationship type as one doctor works with many doctors who in turn could work with many other doctors. The symbol used in this case is M:N.

The vast majority of relationships are of degree one to many. It is useful to distinguish between the single entity, which is termed the owner of the relationship, and the other entities, which are known as the *members* of the relationship. For example, in Figure 1 Patient A is the owner of the "has undergone" relationship and Operation 1, Operation 2 and Operation 3 are its members.

Determining relationship types

In order to determine relationship types, the entity types found in the first stage are used. Figure 4 describes the hospital example and lists the entity types which were found.

Each of the entity types is paired, and the following questions asked:

1. Is the resultant pairing meaningful, ie can one ask a meaningful question about it? The description of the enterprise will help with this.
2. Could it describe structure, sequence, content or any other association?
3. What is the degree?

In order to determine the degree ask the questions:

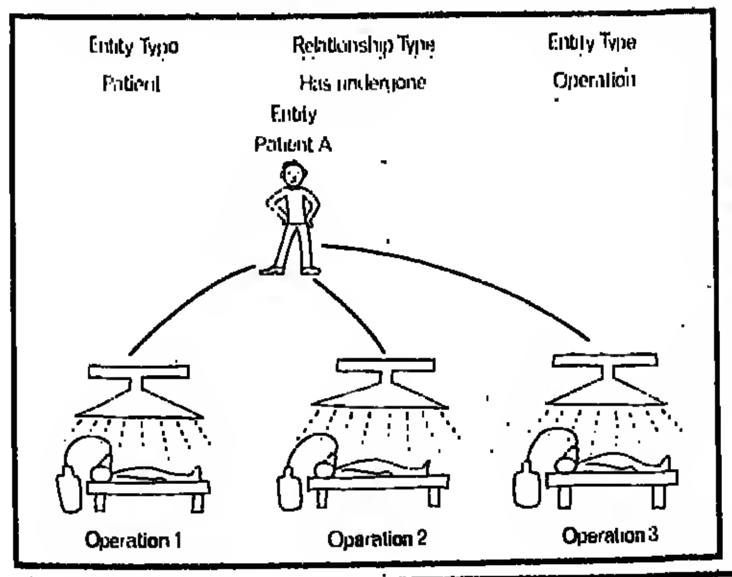
1. Can an entity of type A be related to more than one entity of type B?
2. Can an entity of type B be related to more than one entity of type A?

If the answer to both questions is no, the relationship type is 1:1. If the answer to one question is yes and the other no, the relationship type is 1: N, and if the answer to both questions is yes, the relationship type is M: N.

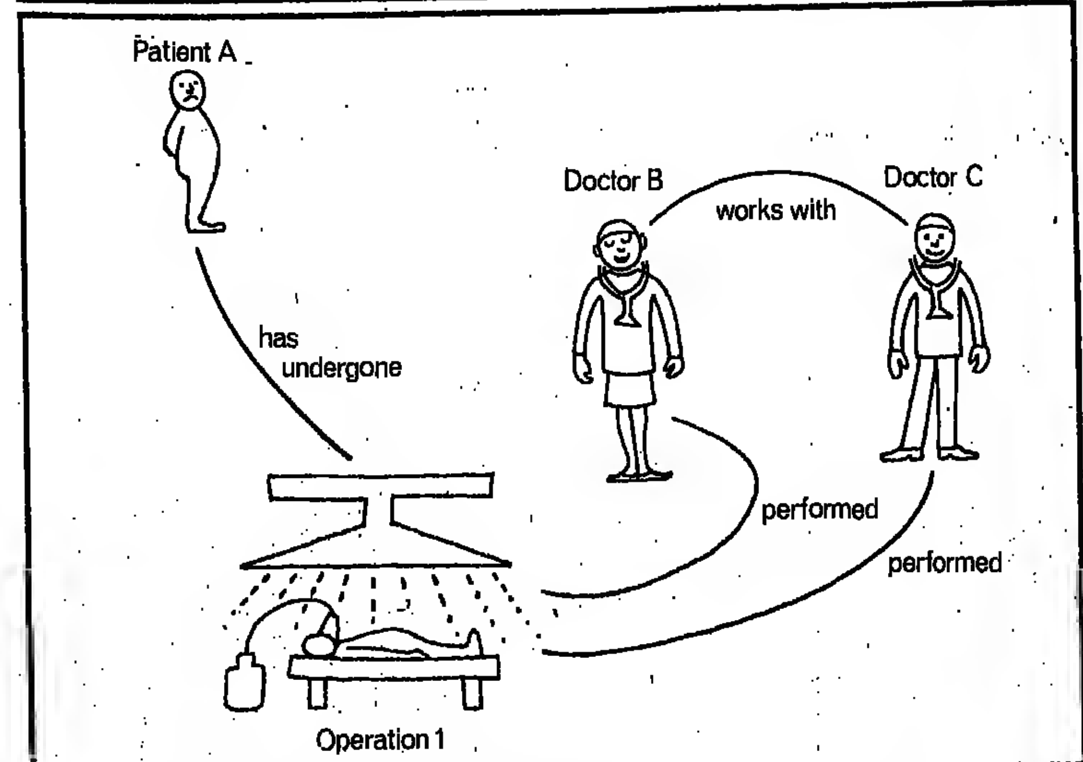
Obviously, at this stage, the users would provide information as to whether the pairing had any meaning or use. It is not suggested that this is a solitary academic task. A grid is a useful method of summarising the results of this stage. Figure 5 shows some of the relationship types we might have found in the hospital example.

In this article the basic concepts of relationship type and degree have been described, with some guidelines on how they are determined.

In the next article entity models will be introduced as a way of pictorially representing the three concepts which have been discussed so far — those of relationship types, entity types and degree.



(left) Figure 1. This example shows one relationship (occurrence) of the type "Patient has undergone Operation" which describes the fact that Patient A has undergone Operations 1, 2 and 3.



(below) Figure 2. Patient A has undergone Operation 1 performed by Doctor B and Doctor C. Doctor B works with Doctor C.

The hospital deals with patients on an appointment system. The patient must make an appointment for a clinic session held at one of the hospital's clinics. The doctors are then allocated one or more appointments within a clinic session, but only one doctor will be present at the appointment. If a patient attends for an operation, it is scheduled and allocated to a theatre session in one of the hospital's operating theatres.

Figure 4. The entity types (shown in bold type) that are found in a hospital.

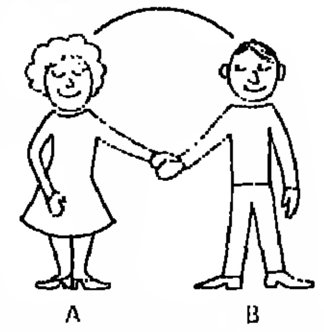


Figure 3. One to one 1:1. Relationship type "is married to". Patient A is married to Patient B.

	Hospital	Patient	Appointment	Clinic Session	Hospital Clinic	Doctor	Operation	Theatre Session	Operating Theatre
Hospital		1			7				
Patient			2				5		
Appointment				6		4			
Clinic Session					3				
Hospital Clinic									
Doctor									
Operation									
Theatre Session									
Operating Theatre									

1. Hospital deals with Patient M:N
2. Patient makes appointment 1:N
3. Clinic Session held at Clinic 1:N
4. Doctor allocated to Appointment 1:N
5. Patient has undergone Operation 1:N
6. Appointment is for a Clinic Session 1:M
7. Hospital has Clinic 1:N

Figure 5. Some of the relationship types that may be found in the hospital example.

COMMUNICATIONS

X25 standard can encourage multi-vendor compatibility

IN the early 1960s – with the computer industry typified by expensive, mainframe batch-oriented systems – significant data communications requirements arose as the use of centralised resources increased the need for data transport.

Remote Job Entry (RJE) methods developed to simplify and speed data entry into a central computer, to improve the currency of file information and data security, and to allow output of results within user departments via data entry/printer terminals.

In parallel, developments were going on in real time communications for demand-responsive systems in airline and defence-oriented environments. Thus, several highly specialised user-specific, high cost communications networks evolved.

The same protection of data, addressing mechanisms and status monitoring is required in long distance data transmission as are provided in control hardware for local memory and device utilisation.

However, because of line interference, fluctuation of signals and line failures, data transmission demands more complex control mechanisms. Basic mode protocols were developed by computer manufacturers to handle error control, data flow and addressing between computers.

The most widely used of these is binary synchronous line control protocol (BSC) and its derivatives.

Adding control characters to denote the start and end of each data block, plus a cyclic redundancy check error control character, enables the communication between the two nodes to be synchronised and protects data as it traverses the line.

Adequate

Transmission and receipt is achieved by handshaking. Transmission of a block of data is considered complete only when the receiving node gives a positive acknowledgement.

Otherwise, retransmission is repeated until a specified number of retries has occurred or the limit of a timeout mechanism is reached, thus passing control to other error handling routines.

BSC is adequate for batch processing over a standard telephone line at 2,400 bps or over a leased line, offering higher speed and a better quality transmission, at up to 9,600 bps.

Specialised links can support up to 56K-bps.

BSC was extended to support multi-point communication over leased lines using multidrop techniques.

Adding an address mechanism to the protocol and sharing a leased connection among several terminals, improves line utilisation. The master computer polls the remote devices for requests for service or transmission, or selects appropriate devices if it has data to send or requires information.

This technique enabled the cost of a leased line to be spread over several locations and began to address the requirements of interactive communications.

Over time BSC was further improved by the addition of interleaving techniques to allow messages to be transmitted simultaneously over the same line and in both directions.

These techniques led to a distinct logical network architecture evolving by default. The relationship is between one master and several slaves, usually dumb terminals. The slaves must wait to be polled or selected before any transmission activity takes place and the slaves cannot intercommunicate other than via the master.

Line utilisation can also be inefficient where one slave system is more active than the others. Some of these problems were alleviated, but not without increased mainframe software overhead, through dyoamic priority and queueing mechanisms.

All processing and system software is resident in the host computer. The greater the communications activity, the more complex and costly is the software overhead to improve response and line utilisation.

Low cost

The hierachical network comprises computer elements of different sizes and capabilities according to functional requirements at each node. Essentially, however, communication is physically between pairs of computers.

Minicomputer networks have evolved somewhat differently. At first used in process control environments, the mini was later recognised as a low cost alternative to centralised facilities to reduce the need for data transmission activity, and thus the cost.

Early systems based on independent stand-alone processors, later distributed access locally via terminals in user departments, interactive computing was available locally, and later consolidated information could be transmitted as batches to a central machine using RJE links.

Since the basic mode protocols were developed independently by a variety of vendors, software interfaces had to be incorporated to make data from the remote computer compatible with the protocol of the mainframe.

IBM as the industry leader, had created de facto standards such as Hasp, 2780 and 3780 in protocols. Many computer vendors thus offered communicaton with IBM hosts, usually by emulation of IBM terminal controllers.

Less overhead

This distributed approach to data processing was, however, favoured over totally centralised processing because, through new technology, it was possible to buy a mini and its peripherals for the same price as a cluster of dumb terminals and its controller.

It also allowed a smaller central machine to be implemented, decreasing the software overhead, and to reduce the use, and thus cost, of transmission lines.

Local databases could be maintained where the information was most needed, reducing contention for access in a geographically dispersed organisation, with local control over data elements.

Typically, minicomputer networks have adopted star or ring switched approaches to network architecture. The star network is similar to the hierarchical relationship, but has several independent nodes on the same level which share central resources directly. The ring-switched network is configuration independent and there is no master.

Thus, approaches to network architecture have diverged as two major approaches, hierarchical and peer-coupled networks – the latter extends ring-switching to allow all nodes to intercommunicate directly.

The prime example of a hierarchical network is IBM's Systems Network Architecture (SNA). IBM introduced SNA as a common support system for a communications network which is now the framework for communications between all IBM hardware and software products.

It does provide for hardware independence of applications and less mainframe load by making controllers and front ends work harder.

Nodes can share lines and network resources, but, in general, no node can address another directly. It must go via the next level up and back again.

The overall superstructure is still based on the control of a centralised machine, with lessening intelligence down the node tree. The host overhead is still huge and most of the processing work is done on it.

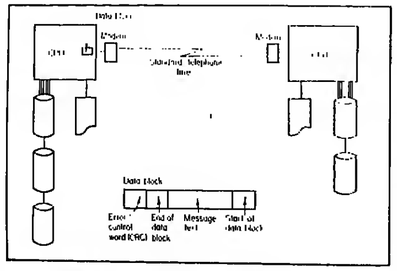


Figure 1. Basic BSC point-to-point transmission.

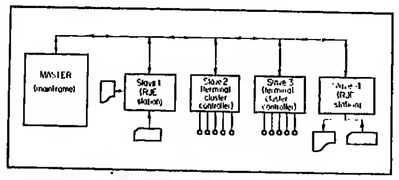


Figure 2. Multidrop BSC transmission.

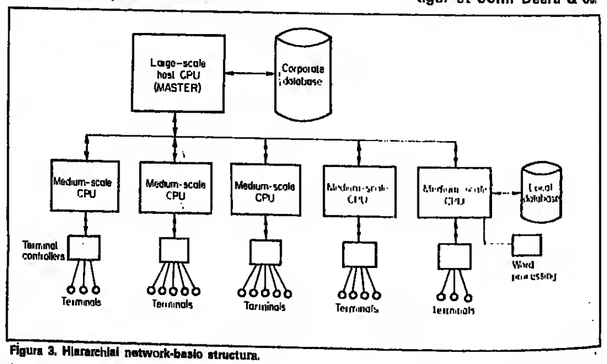


Figure 3. Hierarchial network-basic structure.

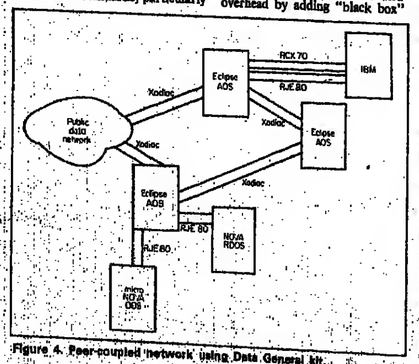


Figure 4. Peer-coupled network using Data General kit.

Network architecture is here to stay and according to David Gilbert has a flexible future, thanks to the X25 standard. Gilbert believes that X25 can encourage multi-vendor compatibility with levels of X25 software allowing file transfer and full distributed databases.

The major benefit will be a significant distribution of costs fairly, based almost entirely on resource usage both in the network and at its nodes.

Gilbert is a systems consultant with Data General based at Hounslow.

In the second feature which starts on page 22, Ernst Weiss, chairman of Intug, the International Telecommunications User Group, looks at the problems facing his group in dealing with the CCITT.

He suggests strongly that the days of imposing communications policy without reference to users and manufacturers are over.

Weiss is telecoms manager at John Deere & Co.

Spending more

Because SNA is vendor-specific, like Hasp and other IBM protocols before it, it essentially cuts our the interfacing of other vendors' systems unless user software is added for IBM terminal emulation.

SNA commits users to spending more on data processing, involving increased equipment budgets for added mainframe resources, bigger communications controllers, synchronous modems and upgrading of terminals to be compatible with SDLC, the SNA protocol.

Simpler and cheaper solutions are available with minicomputers and there are enough now working in distributed environments to resist de facto standards, particularly in the light of large scale public network services based on the standard X25 packet switching protocol.

SNA is an obvious recognition of the growth of distributed processing. As the industry leader, it was natural for IBM to assume that SNA would set another *de facto* standard. However, this networking product has evolved in parallel with the CCITT packet switching standardisation programme.

Although SNA uses packet switching techniques, it does not conform to the internationally accepted X25 standard protocol for the public networks which are far more suited to distributed data processing environments.

This means, for the moment, SNA users must continue to use private line facilities or add further to their hardware costs and overhead by adding "black box" front-ends to make SNA compatible with X25.

Peer-coupled networks are a natural structure for the economics of functional specialisation, leading to further advantages in modularity, adaptability and maintainability. Several systems are interconnected in a network as equal members.

Any centralised need can be served by a co-operative member. Indeed, each can satisfy different centralised needs.

The structure of this architecture permits connections between them without the need to pass information through a higher level node first.

Discipline

This approach to networking actively encourages mixed vendor networks. Their interconnection requires discipline in protocol, routing techniques and the organisation of the network.

This now exists through the X25 internationally accepted packet switching standard and the public data networks which use these techniques.

Before now, there were few methods of coupling minicomputers together. Public data networks (PDNs) incorporate physical control of data transmission in the network itself.

They keep user complexity to a minimum.

Acting as a standard interface between nodes, they are thus transparent to the user.

The PDN is essentially a black box. To the user it looks just like a direct connection to his correspondent – his own network. It is a virtual circuit connection, established by a leased link into the nearest node of a multi-user network.

Since X25 supports concurrent dialogue on a single physical link, one such line connects a user simultaneously with any or all nodes in his own network.

The basis of X25 is a standard line protocol which should function on any standard communications hardware without special interfaces and thus facilitate the design of network node software.

Several industry groups are looking to standardise here. Data General's Xodiac network management system is X25-compatible, as is the equivalent product from Prime.

However, neither can communicate with the other's machines without user-oriented software.

Standards groups are working on the development of, for example, vendor-independent file access and transfer protocols. X25 provides a basis on which to develop and refine mechanisms for transparent access to all resources within a user's network.

The X25 standard resulted from the CCITT's work in formalising telecommunications techniques. Telephone and telegraph networks are designed primarily for speech and low speed telegraph transmission. Some means of improving utilisation and economy had to be established to service a growing requirement for data communications.

Wasted

In parallel, the availability of shared communications facilities would remove the problem of under utilised transmission equipment and wasted resources with private leased circuits. In order to use a line as a shared facility, the traffic has to be multiplexed using a common protocol.

The overall objective was to ensure

● Turn to page 21

COMMUNICATIONS

Major benefit in sharing costs fairly based on use of resources

● From page 20

ble common carrier networks to be developed.

As a shared communications network, the cost of its use had to be based upon traffic, it had to protect against transmission failures and support an enormous variety of user nodes operating at different speeds.

It would involve a network linking all major national cities and other national networks by high speed telephone links and switching centres to handle multiple lines and alternative routing.

Controlled

The X25 packet switching protocol has become the standard for controlling such networks. Data is transmitted in self-contained blocks of a controlled format and length.

These packets are the logical units of data in the network. In a packet switched network, the packets are routed automatically, over whichever path is available, from one user node through various internal switching exchanges until it reaches the destination user node.

The network uses interconnecting circuits to intersperse packets from a variety of user nodes in the time divisions between packets transmitted from other user streams of data.

Thus, under-utilised, low capacity connections can be replaced by a single high-capacity connection. Low speed nodes can transmit simultaneously, their packets interleaved as a high speed stream of data.

This significantly improves and simplifies the use of communications channels and controls hardware and software at the nodes of the user network. Data arrives at its destination in a standard format and in the proper sequence.

Error control is handled by CRC checks and other mechanisms carried out at consecutive switching exchanges and the receiving node.

If errors are detected, the packet is retransmitted automatically. With packet switching, routing is varied dynamically to allow for load conditions in the intervening network nodes. Automatic routing also protects data when poor transmission or line failures inhibit a certain route.

X25-based networks employ extensions which allow standard asynchronous terminals to connect to remote computers. Packet Assembly/Disassembly (Pad) routines at the switching exchange to which the terminal is connected, convert character data to be compatible with packet transmission over the high speed lines.

In this type of network, closed or partially closed user groups can operate. Access is restricted to members of the user network or certain named public network subscribers.

Cheaper

The X25 standard and its extension into public networks such as the UK Packet Switched Service, the French Transpac and the private networks Telenet and Tymnet in the US and Datapac in Canada will attract users away from costly private circuit switched networks.

This is particularly relevant where the telephone/telegraph networks are state-owned.

Leased lines are not attractive from the suppliers' viewpoint either. They are costly to implement and not easily maintained. These costs are growing and it is this that will attract users to the cheaper public network services.

Moreover, with packet switching, pricing is normally distance-independent, so users are charged strictly by volume of data and not the duration or distance involved in transmission.

The whole concept of information processing now hangs on communications. The large scale private and public networks are standardising on X25 and are cheaper to use than small, user-specific networks.

Logical user networks can be superimposed on a public framework. If the logical networks are peer-coupled, the potential is there to enable machines to share programs, data and devices.

These resources can thus be located at the site that needs them most, reducing line costs still further, with direct occasional use by others in the network.

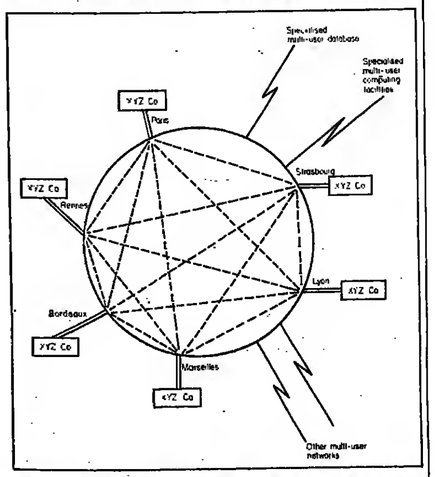


Figure 5. An X25 packet switched public data network such as Transpac.

Moreover, with packet switching, pricing is normally distance-independent, so users are charged strictly by volume of data and not the duration or distance involved in transmission.

The whole concept of information processing now hangs on communications. The large scale private and public networks are standardising on X25 and are cheaper to use than small, user-specific networks.

Logical user networks can be superimposed on a public framework. If the logical networks are peer-coupled, the potential is there to enable machines to share programs, data and devices.

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by David Gilbert

The X25 standard alone is perhaps enough to encourage multi-vendor compatibility, with levels of X25 software allowing file transfer, full distributed databases and shared programs and devices.

Other standards which support these extensions are those related to Cobol and database management systems to which most manufacturers already conform.

Value added networks like Telenet and Tymnet, also using the X25 standard, offer access to public database information and large scale computing facilities in a similar fashion to the traditional bureau-based time sharing networks.

The major benefit is significant distribution of costs fairly, based almost entirely on resource usage both in the network and at its nodes.

Policy without the co-operation of users not possible

PROBLEMS are emerging as a result of the invasion of electronics into the field of communications technology. All of a sudden, there are applications of unexpected dimensions.

The users now are industry, commerce, and government.

ERNST WEISS, chairman of the International Telecommunications Users Group, argues that the main standards formulating body, CCITT, cannot do its job efficiently without taking into account the views of usare.

PROPERLY functioning public networks and an ample supply of suitable terminal equipment have long been able to satisfy the demand for inter-user data communications in Europe.

In industry the telecommunications manager, with his classic technical training in communications, is usually attached to the plant maintenance department.

In banking and commerce, he hardly exists. Here, one person who fills out Post Office forms is usually enough and advice is obtained from manufacturers.

Nevertheless, with the invasion of electronics into the field of communications technology problems are emerging. All of a sudden there are applications of unexpected dimensions.

Dissatisfaction

The postal authority as network carrier is charged by the public to satisfy all demand but it does not know where the market is. Then the postal authorities and the manufacturers begin experimenting and dissatisfaction spreads, because demand for a better form of communication is growing faster than it can be satisfied through conventional practices.

The organisational machinery available to postal authorities and manufacturers is too big to work economically. This is apparent at the national level, where there is concern up to the level of the Consultative Committee on International Telegraphy and Telephony, which is part of the International Telecommunications Union, to protect and maintain the functioning of the public network as well as to protect domestic telecommunications industries and keep them economically viable in spite of planning errors.

World telecommunication policy is set by this giant in Geneva.

But now the users are starting to organise. At first in small, ad hoc groups and committees, usually committed to a special application or technical area of interest. These groups are usually very effective, but co-ordination is lacking.

Elements

There are three elements which keep the development process running:

1 Technologies are developing further and faster than the structure of the organisations which use them. The classical border between communications technology and operational organisation theory is softening, since it is recognised that the dissemination of data is becoming more and more a question of transportation of information from one place to another.

Data transfer clearly involves telecommunication technology. On the other hand, it is not enough just to improve communications performance. Rather information handling requirements must be identified and the workplace studied and systematically analysed —and that clearly involves organisation theory.

2 Because of a series of factors that are difficult to influence – such as politics, capacity of the supplier industry and economic developments – there are different developments in different national areas.

For example some countries' postal authorities are more open minded or liberal towards private activity in the terminal equipment market than others.

Transborder data flow cannot be cut off in any way, neither technically nor informationally

But attempts at restrictions in different countries give rise to much manoeuvring, lobbying, elaborate subcontracting arrangements and any other tricks that can be dreamed up.

3 And finally, users are beginning to notice that the operational cost of telecommunications is becoming a considerable factor.

They are noticing that telecommunication costs need no longer be seen as public fees dictated by fate, because there are rational alternatives.

Thus national users associations are being formed in many European states. Over 10 years ago the forerunner of the Telecommunication Managers' Association was founded in the UK and is now the biggest telecommunications users' association in Europe.

Similar associations now exist in Belgium, France, Switzerland, and since September 1978 also in Germany – the Deutsche Telecom.

The role of these is to represent the interests of commercial, or rather, business teleenmmunications users within the national area. Rights and technical problems can be more effectively presented if they carry the weight of a majority.

Problem areas are pre-filtered here in order to formulate individual cases and partially emotionally accented reports in an objective manner.

The International Telecommunications User Group (Intug) has existed since 1974. It is a parent organisation of national user associations on the one hand, and a union of internationally active user associations on the other.

The members of this union at present are the following:

Belgium, Telecommunications Managers' Association of Belgium (TMAB); UK, Telecommunication Managers' Association, part of the Institute of Administrative Management (TMA); Société Française des Utilisateurs du Téléphone et des Télécommunications (ARUTT) West Germany, Deutsche Telecom; Japan, Federal Japan Communications Association (FJCA); the European Association of Information Services in West Germany, Gesellschaft für Dokumentation e.V.; the European Space Agency, and the International Press Telecommunication Centre (IPTC).

Intug attempts to represent views in such international bodies as the ITU, CCITT, CEPT, EEC, Unesco and the IMCO which concern themselves either exclusively or in part with questions of international telecommunications.

This is a very difficult mission since in the international realm, the user has been viewed as an incompetent consumer.

But these opinions are yesterday's snow. We know that telecommunications is the most important economic factor in the industrial economy after material, wages and salaries.

This has brought an important change in the position of the user in the triangular intercourse of postal authorities – manufacturers – users.

According to the latest data, business users represent over a third of the market, and now we are beginning to be a politico-economic factor. Here we find ourselves at home.

Intug has had observer status with the CCITT since May 4, 1979. CCITT is the standard body of the International Telecommunications Union. For the privilege of being present at CCITT general assembly meetings, Intug pays 13,000 SFr each year.

On June 17, 1979, the then chairman of Intug, Alex Tomberg, from Shell, posed the following five questions on the general situation in international telecommunications, to CCITT president Mr Hultz:

Questions

1 What measures have been adopted by member administrations to simplify administrative requirements and reduce production costs for suppliers through uniform national qualifications and, b significantly shorten the length of qualification procedures and thus allow shorter lead times for user implementation of new technologies and reduce the resulting costs?

2 What procedures could be adopted to bridge the time gap between the appearance of technological innovations which obviously necessitate international standardisation and the introduction of CCITT standards?

3 What possibilities are there for making fees for international services in the field of telecommunications so understandable that even users can understand and use them?

4 What position does the CCITT take towards the postal authorities concerning their opinion of the problem of user network carriers?

5 What possibility does the CCITT see of co-operation with representatives of the user community to ensure that telecommunications facilities and services fulfill users' social and commercial requirements?

On August 7, 1979 Burtz answered us with a simple statement described in three pages that it was not for us, as observers, to ask questions and we should refer our questions to the national postal authorities, which could present the questions *as members of the CCITT*.

To conclude, we now hold a better position and the CCITT is also prepared to talk to us directly. What results we will achieve depends to a large degree on ourselves.

The user community is well aware of its role in international telecommunications politics. But the postal authorities and manufacturers have also recognised that a productive telecommunications policy without the co-operation of the users is no longer possible.

Packet switching is found to cut costs

by Morris Edwards


Edwards

PACKET switching appears the most cost-effective technique for integrating voice and data applications in a common communications system.

That is the somewhat surprising conclusion of a study performed for the US Defence Department by consultants Network Analysis Corp of Great Neck, New York.

NAC based its study on projected traffic volume over the Pentagon's Autozon voice network and Autodin II data network. It found the potential monthly cost savings with packet switching range from $1 million to more than $70 million, depending on the volume of data carried and the voice digitisation rate employed.

Also, packet switching costs less than the other switching techniques studied whether the voice and data were carried by one integrated network or by separate networks.

NAC warns that, since the study used line charges based on tariffs and not on common carrier costs, the results may not be valid for common carriers.

Further, before the potential cost savings from packet switching can be realised, several "transitional" issues need to be resolved in evolving from current circuit-switched voice networks.

For its analysis, NAC compared variations of three switching technologies: circuit switching, packet switching and a hybrid of circuit and packet switching.

In traditional circuit switching, once a connection is established between a pair of voice or data users, the end-to-end transmission facilities are dedicated to the users for the duration of the call.

NAC assumed the use of advanced circuit-switching technology utilising common channel inter-office signalling for circuit setup and disconnection. Such systems use dedicated networks to transmit the routing and address information needed for call setup.

This reduces the connection time from 10 seconds or more with conventional circuit-switching technology to two seconds or less. In addition, these systems can carry other information, such as whether a call is voice or data.

NAC also investigated using fast circuit switching for interactive data applications, in conjunction with traditional circuit switching for voice and bulk data uses.

With fast circuit switching, a circuit is established for each message when it is ready to be sent and disconnected after transmission, so that transmission facilities are not dedicated to the user during idle "think-time" periods.

In the hybrid switching mode, the transmission and switching facilities are dynamically shared between traffic using both circuit and packet switching.

Voice is accommodated by circuit switching, interactive data applications by packet switching and bulk data applications by either type, depending on the operating discipline selected.

NAC examined two options for sharing transmission capacity: one fixed boundary frame management, where the partition of link capacity is fixed; and, two, movable boundary frame management, where a boundary is assigned between the packet and circuit transmission capacities, but where packet switched traffic can dynamically utilise idle channel capacity assigned to the circuit-switched mode.

Protocol

NAC considers this a potential transition technology to on integrated voice and data packet switching system.

In the packet switching mode, different packet sizes and transport protocols are used for data and speech. NAC also considered two packet voice protocol options: Fixed Path Protocol (FPP) and Path Independent Protocol (Pip).

With FPP, a virtual path is established through the network and all voice packets in a particular call use that path. When either party hangs up, the path is released.

With Pip, no path is established; each voice packet is routed independently of other packets in the same conversation.

Intuitively, one might suppose that delays inherent in packet switching would preclude its use for voice communications.

However, it turns out that the delay factors can be handled, and that voice conversations are "bursty" in nature, like many data applications, and so lend themselves to the cost-saving potential of packet switching.

Voice conversations, in fact, are characterised by active speech periods separated by silent intervals of about the same duration.

Further, only one speaker is usually active at any time, so that dedicating an end-to-end circuit to a pair of subscribers for the entire conversation wastes channel capacity.

In the past, the processing cost was too high to take advantage of silences in speech, so dedicated channels made sense. During the past 20 years, however, a number of analogue and digital techniques have been developed for compressing the conversations of a number of speakers onto a smaller number of channels. Unfortunately, the use of these technique is restricted to dedicated links. Packet voice extends the same bandwidth savings to a switched environment.

As for the delay factors, empirical tests at Bell Labs indicate that most users experience difficulty in voice conversation if delays in excess of 600 milliseconds are inserted at the beginning of speech segments.

Delays of 300 milliseconds are imperceptible, while delays of one second or more are intolerable.

Accordingly, NAC assumed networks engineered to give a nominal end-to-end packet delay of 200 milliseconds for interactive data users and packet voice, and 600 milliseconds for bulk data applications.

In the packet voice network, NAC assumed that speech is digitised in the user headset but packetised at the background switch. (See Figure 1).

Digitisation could also be performed at the switch, but NAC assumed the need for secure communications, which is easier to implement if speech is digitised at the headset.

The adaptive-delay buffer may also be located in either the switch or headset, depending on the desired distribution of intelligence between terminal and network.

This buffer compensates for delays in packet arrivals to preserve the continuity of the reconstructed speech.

For its study, NAC considered voice digitisation rates varying from 2.4K to 64Kbps. Data traffic was assumed to be 50% bulk data and 50% interactive data applications, but the ratio was varied over a wide range for sensitivity analysis.

For line costs, NAC used the tariffs for AT&T's dataphone digital service. NAC notes that, in its switch analysis, no allowance was made for the use of speech compression techniques, though such techniques may become available. Further studies are being considered to examine these options.

On the basis of total backbone network costs, with specific traffic patterns, NAC gives this ranking of switching technologies in order of cost-effectiveness: packet switching, hybrid switching, ideal circuit switching, fast circuit switching and traditional circuit switching.

Ideal circuit switching, which assumes instantaneous call setup and disconnection, is not physically realisable, but was considered to give a lower bound on transmission costs for circuit-switching technology.

Independent

NAC found the ranking of switching technologies remains virtually unchanged under a variety of traffic, cost and parameter assumptions, with packet switching providing the cheapest networks for all cases studied. (See Figure 2).

This conclusion is also independent of whether voice and data are carried on separate networks or a single integrated network.

Backbone network costs for alternatives to packet switching range from 30% to over 1,700% higher than packet switching.

With regard to the vocoder bit rate, NAC says traditional circuit switching can gain the greatest cost savings by using low-rate digitisers.

However, even with 2.4K-bps devices, traditional circuit-switching network costs are higher than those of packet switching networks using 9.6K-bps digitisers.

Both the relative and absolute cost savings achieved by packet switching increase as the voice digitisation rate increases.

NAC also found the moving boundary frame management strategy in hybrid switching to be slightly more cost-effective than the fixed version. However, the cost difference had an upper boundary of only 5% within the range of parameters investigated. NAC recommends that, with hybrid switching, bulk data applications should either use a longer packet size or be served by the circuit-switched subnet.

Segregated voice and data networks result in only slight cost increases over an integrated voice and data network for all the switching technologies considered.

Further, segregated packet systems for voice and data cost less than integrated systems using either hybrid or circuit-switching technologies.

Since packet switching is more suitable for applications such as conferencing and sending messages to multiple destinations, if such applications have been included in the study, packet switching would have been even more cost-effective.

Also, packet switching offers operational advantages over the other technologies. For instance, it can readily accommodate a variety of priority schemes without dedicating transmission resources, unlike circuit switching.

Further, packet switching is inherently more suitable for communications using various media, technologies and systems, a facility known as interoperability.

With packet switching, interoperability is accomplished via gateways which interface the different networks.

Interoperability could be a significant problem during the evolution of integrated voice and data networks, so this feature of packet switching could be most useful.

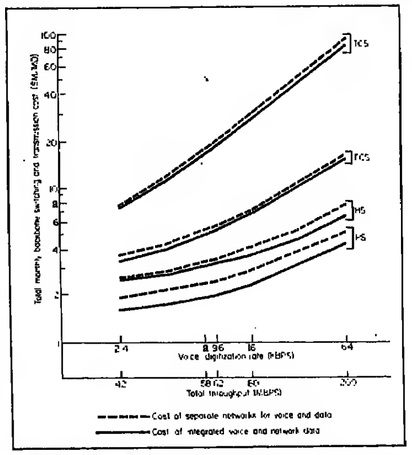

Figure 2. Comparison of network costs for different switch technologies shows packet switching (PS) to be more cost-effective than hybrid switching (HS), fast circuit switching (FCS) and traditional circuit switching (TCS) over a range of voice digitisation rates from 2.4K to 64K bps.
Traffic: 2,700 erlangs voice traffic digitised at the VDR rates indicated. 36.16 MBPS data traffic, 50% bulk, 50% interactive
Costs: Current hardware costs. Hardware costs include installation, operation and maintenance, based on a 10-year plan. Transmission costs include mileage and termination charges. Cost of voice digitisation devices not included.

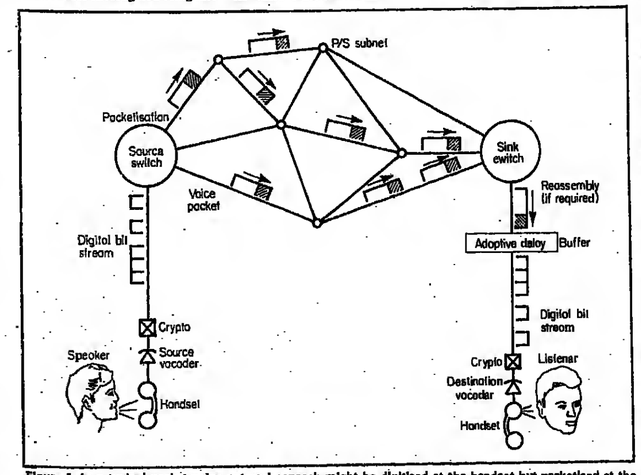

Figure 1. In a typical packet voice network, speech might be digitised at the handset but packetised at the backbone switch. The voice packets for a conversation may go over the same virtual path or be routed individually as in datagram operation. The adaptive delay buffer compensates for delays in packet arrivals to preserve the continuity of the reconstructed speech.

Helping bosses digest their daily mail

A PROGRAM to help businessmen digest their daily correspondence by abstracting the text of mail and the use of artificial intelligence techniques in improving retrieval from databases, were two of the ideas put forward at the first conference of the American Association for AI, held at Palo Alto, California.

Evidence that computer manufacturers are now showing interest in AI came from the presence of IBM, Hewlett-Packard and Texas Instruments representatives.

The abstracting project was described by Lance Miller of IBM Yorktown Heights, who called it Epistle (Executive/Principal's Intelligence System for Text and Linguistic Endeavours).

IBM's hope for eventual success for the project is based on the observation that business letters have extensive regularities, conforming to a few patterns.

It could then be possible to extract the essential subject matter of letters and present that to busy executives for selection. Automatic generation of replies is also part of the project.

Several papers at the conference, notably that from Jonathan King of Stanford University, dealt with intelligent query processors for database retrieval. By language analysis, queries could be refined or restated so as to reduce search time or improve the effectiveness of a search.

In the field of expert systems competing with human experts, Christian Wagner and John Vinsonhaler of Michigan State University described findings that their AI system was much more consistent than human experts in diagnosing reading difficulties.

In this case the professionals not only disagreed with each other but also disagreed with their own diagnoses made two weeks before on the same data.

Sesa teams up with Greek bank

FOLLOWING the formation of a UK subsidiary earlier this year, and the formation of Sesa-Honeywell Communications in the US this month (CW, October 9), Sesa has formed a Greek subsidiary. The French systems house, which specialises in communications applications, has teamed up with the Industrial Development Bank of Greece on a 50-50 basis to form Sesa-Hellas in Athens, which has a capital of about £100,000.

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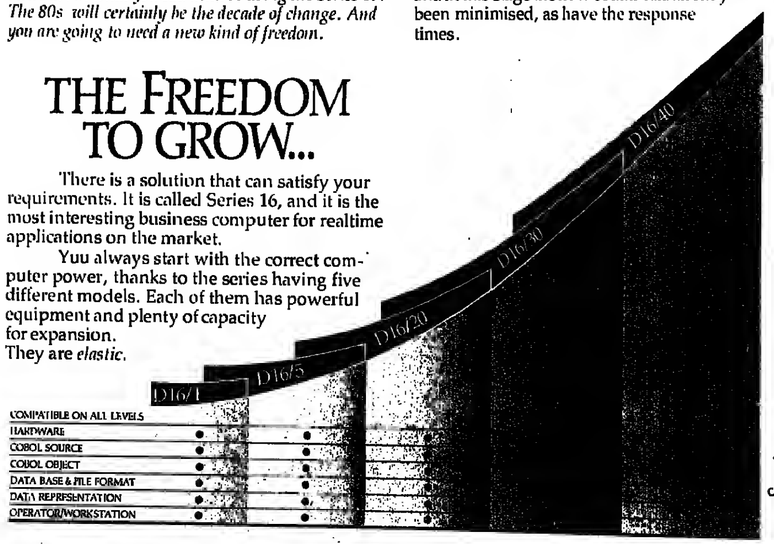

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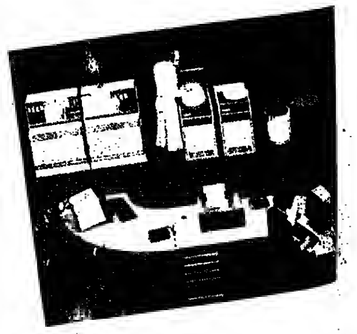

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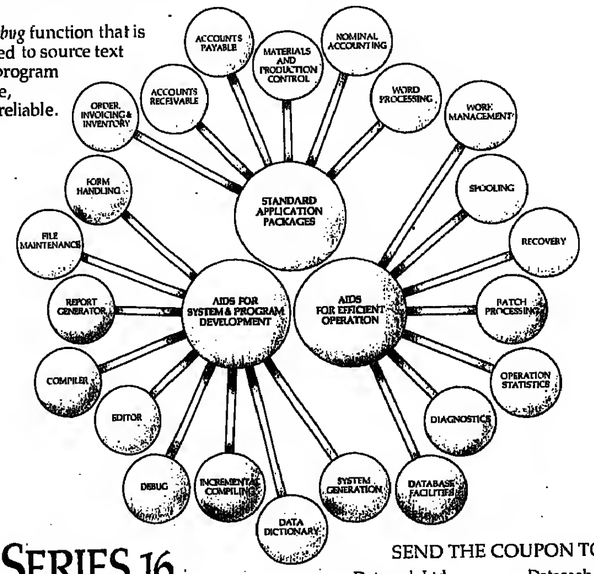

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Contact: Isobel Bruce

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Surrey **Salaries to £10,000 dependent on experience**

Our client, currently expanding their 2960 site, are looking for experienced programmers and analysts to assist in the development of major projects over the next few years. Applicants must have George III and/or VME/K experience which has been gained, preferably, within the Insurance Industry. All levels of expertise will be considered although special preferances will be given to the more senior applicants.

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Contact: Margaret Stevens

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Contact: Margaret Stevens

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Contact: Margaret Stevens

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Kent **c. £6,500**

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Contact: Jim Baker

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JAMES BAKER ASSOCIATES,
International Personnel Consultants,
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(3162)

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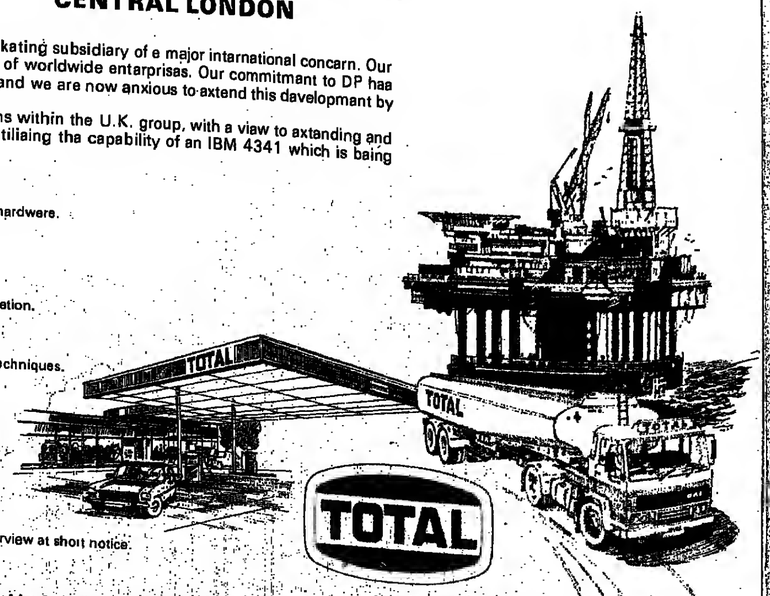

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For further details on the technical side ring either Howard Bartley or Ron Gregory or for an application form contact Personnel Department, Total Oil Great Britain Limited, 33 Cavendish Square, London, W1. (Tel. No. 499 6383)

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COMPUTER WEEKLY

OCTOBER 30, 1980

RECRUITMENT & EDUCATION SUPPLEMENT

the most informative publication of its kind in the UK

In spite of rising unemployment the computer industry continues in its demand for a regular supply of qualified computer people. As the market expands, so to does the need for new skills and abilities. Although more and more training facilities are available, the chronic shortage of manpower remains, causing a major problem for all companies involved with computers.

Our annual Computer Weekly recruitment and education supplement, especially planned to coincide with and be available at Compec '80 — Britain's biggest computer exhibition — will be packed full of valuable information covering the whole spectrum of the computer job market. Editorial contribution will be substantial, appealing to data processing professionals, as well as the next generation of young people who will be required to take up the challenge and share in the achievements of the next decade and beyond.

This years supplement will be published on October 30 and distributed in the normal way to all Computer Weekly readers. Copies will also be available to visitors from the Computer Weekly stand at Compec. Last year, some 34,745 visitors attended the exhibition.

The supplement is a unique publication, being the only newspaper of its kind produced in the U.K. dealing specifically with the subject of careers and job opportunities for DP personnel. *The combination of the supplement's extensive editorial support, the large circulation, and Computer Weekly's standing in the industry, means this supplement is a must for recruitment advertisers.*

Computer Weekly has the largest circulation in the specialist computer press (91,656 ABC July-Dec 1979). This has increased continually over the years to reflect the ever growing number of personnel in the computer industry. Additionally, and equally important, the newspaper has the highest number of individually requested copies of any weekly computer publication.

For further details regarding the supplement and the special Compec *free* computerised recruitment service, contact your nearest Computer Weekly Classified Office: London: 01-261 8028/8019/8174/8097. Manchester: 061-872 8861. Birmingham: 021-356 4838.

Published to coincide with and be available at

COMPEC '80

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COMPUTER WEEKLY

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BAHRAIN
Technicians

System Operations Department
Electricity Directorate

Our client, the Government of the State of Bahrain, requires qualified and experienced TECHNICIANS to staff a new System Control Centre, currently at an advanced stage of construction as part of the planned expansion in Electricity development by the Ministry of Works, Power and Water.

There are immediate vacancies for Senior Technicians and Technicians in the following disciplines:

Telecontrol and Communications
Telephony and Telepinting
Computers (involving maintenance of both hardware and software) and
Power Plant Supplies

Candidates must be qualified to either HNC standard or have a Full Technological Certificate in the appropriate skill. In addition, operational experience of Brown Boveri Control Systems or Digital PDP11 computer experience will be an advantage, although familiarisation training will be given where other appropriate experience is offered.

The State of Bahrain which is situated in the Arabian Gulf is well governed, stable and highly developed and the large European expatriate population enjoys a high standard of living and personal freedom combined with excellent social and recreational facilities.

TAX FREE salaries, paid in Bahrain Dinars, will be within a scale, the maximum of which is £9,590 per annum. Placement on the scale will depend on position, qualifications and experience. In addition, an annual gratuity of one month's salary is paid at the end of each service year.

The initial married status contract is for two years, renewable by mutual agreement. Additional benefits include: free furnished air conditioned family accommodation; 36 days' annual leave with paid family leave passage to the UK; car allowance; free medicare; generous educational allowances (schooling for children of all ages is available in Bahrain).

Interviews with representatives of the Electricity Directorate will be held shortly in the UK. Suitably qualified candidates should submit full professional and career details as soon as possible to:

SCOTCONSULT LTD.
Management and Resource Development Consultants
44 North Castle Street Edinburgh EH2 3BN, Scotland
Telephone 031-226 6696

(3186)

Athrofa Gogledd-dd Cymru
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SCHOOL OF MATHEMATICS, STATISTICS AND COMPUTING
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Further details and forms of application may be obtained from the Institute Registrar, North E. Wales Institute of H.E., The Coach House, Kelsterton Road, Flint, Clwyd. Tel. Deeside 816236, to be returned within 14 days of the appearance of this advertisement.

(3189)

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Our clients are manufacturers of quality home products who are situated on the Essex/Herts borders. The location is accessible from both East Anglia and London.

They seek COBOL Programmers with a minimum of 2 years' experience gained preferably on commercial applications. Chances exist for progression into Analysis. In return they offer a good salary, 4-5 weeks' annual leave paid at time and a half, subsidised company products and a bonus of up to 8%.

D.46''

RPG II ANALYST PROGRAMMERS

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An excellent opportunity has arisen for experienced Analyst Programmers in progress into consultancy. Ideally you will have at least three years' IBM RPG II experience, one of which should involve systems work.

Applications will revolve around banking and insurance projects and will include database, communications, and financial planning and modelling.

Applicants must be of smart appearance and have been educated to A level standard. An excellent benefit package is offered and futuristically will include a car.

M.4726

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BASIC + /BASIC +2

VARIOUS LOCATIONS — **to £8,000**

We have a number of vacancies for programmers experienced in Basic, Basic +, Basic +2 or AIMS. Upwards of eighteen months' experience could open opportunities in BANKING, INSURANCE, LEISURE or SOFTWARE HOUSES located in CENTRAL LONDON, ESSEX or HERTFORDSHIRE. Experience with DEC, PDP, DIGICO or SYSTIME equipment would be particularly relevant.

REF R/GEN

RPG II PROGRAMMERS

LONDON CITY — **to £8,000**

A well established software house specialising in insurance and banking systems are recruiting RPG II Programmers. You should have at least 18 months' experience preferably with IBM hardware and gained ideally within a financial environment. Client contact is expected and applicants will be dealing with management at all levels. These positions offer excellent scope for capable programmers who wish to enhance their careers by utilising the latest IBM software and in-house developed database systems.

M.4724

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E. LONDON — **to £8,000**

Our clients are recognised leaders in the leisure industry who are looking for a Senior Programmer for their IBM installation. The situation is on the East London-Essex borders. The computers are 370's with 4341's on order.

Applicants should have around 4 years' experience of COBOL on IBM equipment and ideally will have CICS experience.

In addition to the salary the company offers a Christmas bonus, paid overtime, 5 weeks' annual leave and a staff shop.

D.4719

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LONDON CITY — **c. £7,000**

A leading City bank have vacancies for COBOL Programmers with upwards of two years' experience. The department is medium sized and utilises BURROUGHS hardware. A background that includes banking or financial applications would be particularly appropriate for these attractive vacancies which offer MORTGAGE SUBSIDY, NON-CONTRIBUTORY PENSION and SEASON TICKET LOANS.

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D.4713

3182

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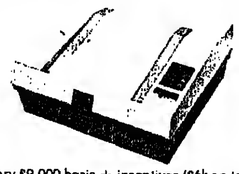

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The successful applicants will be able to show a successful track record selling high-value business in the communications or data processing industry.

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Guaranteed earnings, including a high basic salary are negotiable around £10k, and on target performance will earn another £5k in the first year.

For more details contact: Ann Fortescue, Data Logic Limited, 29 Marylebone Road, London NW1. Tel: 01-486 7288.

Data Logic

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(3142)

SYSTEMS DESIGNER

Starting circa £9K

We have an IBM 370/138 running DOS/VS and CICS. Word Processing is being developed at present and all project teams are involved with on-line development. DOS/VSE is being introduced in preparation for delivery of an IBM 4341 in 1981. CMS/VS is included in our future plans.

You will work in one of our project teams developing and maintaining computer applications. Your responsibilities include investigation and detailed design of systems, technical guidance of programmers and co-ordination of system testing. You will also be expected to liaise with User departments and Computer Production section and Technical Support group when necessary. You should have five years experience in D.P. including three years COBOL and some analysis experience.

For further details and application form ring Tony Eldred on 937-5464 Ext. 662 or write to Director of Personnel and Management Service, Town Hall, Hornton Street, W8 7NX quoting Reference CW 833.

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Correspondence to: Mrs. D.L. Fisher, Research Machines Ltd, [illegible] Street, Oxford OX2 0BW

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Please contact: Mike Clarke, Personnel Manager

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Tel: 01-928 4977, ext 269

BASIC + and RSTS SENIOR PROGRAMMERS to £8,000

We urgently require Senior Programmers with good BASIC + and RSTS experience for the vigorous and expanding Business Systems Division of a medium sized software house. Applicants should be competent, smart, well spoken and have a professional attitude to life. The company offices are at a large country house near Wokingham, but staff are required to travel and work on clients' premises at times, therefore a generous car mileage allowance is given.

The persons appointed will be required to work both on their own and as team leaders, meeting set targets and objectives. There is every opportunity for career expansion, as staff are expected to learn additional languages and hardware as necessary, and will be introduced to systems design and project leadership at the earliest possible opportunity.

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The system has a dedicated mini-computer with direct telecommunication links to mainframe computers at the Civic Hall and University.

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Closing date: 3rd November, 1980.

HOME or ABROAD

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A well-established national company are currently recruiting software people to enhance their development programme. These challenging opportunities will involve you in specification, design and development of software for a wide range of systems and applications in the scientific and technical field which encompass communications, graphics, cartography, geometric modelling, production planning, PCB layout, etc. There is an excellent relocation and benefits package. 330/1200

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Make the most of your experience, national manufacturing company require a systems analyst/programmer to help develop a new on-line work in progress and inventory control system. Your experience of management information systems and financial applications would also be advantageous as would ICL experience. Excellent prospects and relocation and benefits package. 330/1177

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To liaise with user department in developing new systems and enhancements to existing systems.
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If you feel confident of your ability to take your first step in management telephone David Wain on 021-643 1994.

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ASSEMBLER ANALYST/PROGRAMMERS

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Candidates should have a minimum of 12 months' experience of programming within a commercial environment. Knowledge of the problems experienced by first time users and their solutions would be an advantage. As the positions will involve client liaison it is important that candidates should be able to communicate effectively.

The majority of the projects are concerned with new installations and therefore these positions represent outstanding opportunities to work on various applications in a stimulating atmosphere.

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BISHOP'S STORTFORD (0279) 506464, 29 Barlow Lane, Bishop's Stortford, Herts
BRISTOL (0272) 211035, Equity and Law Building, 36/38 Baldwin St. BS1 1NR
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RECRUITMENT AGENCY

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Central Trustee Savings Bank has extended its developments at a rapid rate over the last 7 years. Situated in the City of London the computer installation comprises 2 IBM 370/148's, a PDP 11/35 and 2 PDP 11/70's. Our current developments include the completion of a major revision of the existing Clearing Systems, together with the implementation of new computer systems in the areas of Visa Travellers Cheques, Sterling Dealing and Banking. In order to meet these commitments, we require additional systems and programming staff.

PRINCIPAL SYSTEMS PROGRAMMERS

c£10,500 (inclusive of London Allowance)

Applicants should have at least 5 years' experience of IBM 370 programming using Cobol and Assembler in a DOS or DOS/VS environment at least 4 years' of which will have been in a systems programming capacity. A knowledge of CICS and VSAM would be an advantage.

Alternatively applicants should have 5 years' experience of PDP 11 programming using Cobol and Assembler in a RSX 11 environment at least 4 years' of which will have been in a systems programming capacity.

SENIOR SYSTEMS ANALYSTS

c£9,400 (inclusive of London Allowance)

Applicants should have 5 years' experience of systems analysis with a practical knowledge of communications, systems testing and implementation support. Experience in banking or finance would be an advantage. Knowledge of clearing systems would be particularly appropriate.

We offer an attractive range of benefits, including non contributory pension scheme, luncheon vouchers and subject to certain conditions a house mortgage subsidy scheme and season ticket loan scheme.

Applications in writing should be forwarded to Gareth Jones at the following address:–

TSB

Central Trustee Savings Bank, St Mary's Court, PO Box 99, 100 Lower Thames Street, London EC3R 6AQ.

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C. £7,700 p.a. (under review in January)

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Projects will cover a wide variety of systems within the U.K. group, with a view to extending and improving our existing TP network, and utilising the capability of an IBM 4341 which is being installed shortly.

YOU WILL HAVE

1. At least 18 months' Cobol experience on IBM hardware.
2. Preferably experience of IBM 370 DOS/VS
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IN RETURN WE CAN OFFER

1. An excellent salary package.
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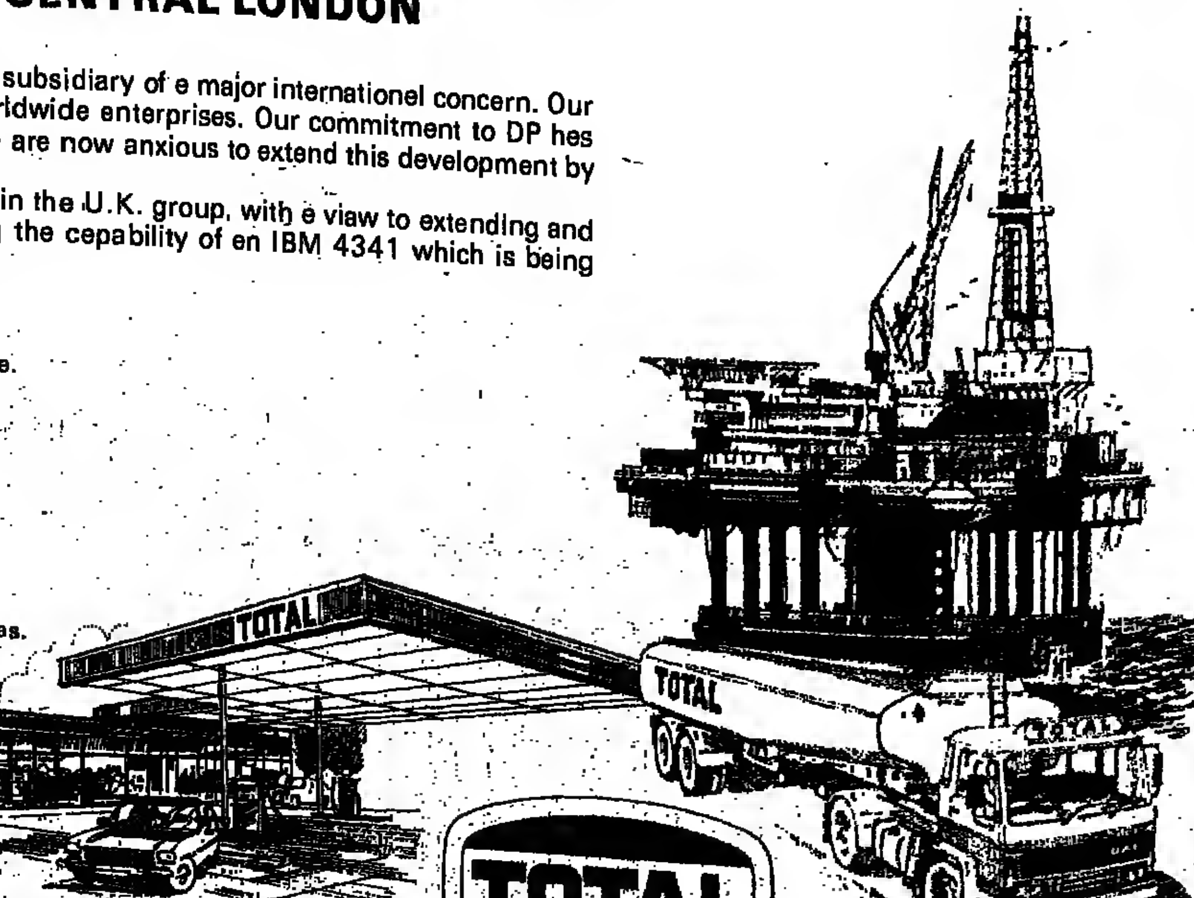

It would be possible to arrange an interview at short notice.

For further details on the technical side ring either Howard Bartley or Ron Gregory or for an application form contact Personnel Department, Total Oil Great Britain Limited, 33 Cavendish Square, London, W1. (Tel. No. 499 6393)

Delta Data Systems Ltd

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Must have experience of mini or micro ASSEMBLER, preferably Texas or Intel.

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With design, development or support experience on peripherals, preferably display terminals and floppy disks.

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Salary
£4,713-£5,790 per annum
(Computer Operator)
£4,089-£4,653 per annum
(Trainee Computer Operator)
inclusive of £740 London Allowance and £634 shift allowance.

Interviews by arrangement with the Secretary, Computing Centre, Chelsea College, Fulham Broadway, London, S.W.6. Tel. 01-736 1244, ext. 273.

(3135)

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Pre-sales Consultant with experience of systems in the travel industry for high-level position in Germany. Must be excellent communicator (in german!), presentable, mobile. Full relocation package.

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Systems Programmers with experience of large IBM equipment, preferably with database and TP knowledge will find challenging and rewarding work with this International Manufacturer in Middx. Experience of compilers advantageous, NVS, VSAM, IMS of particular interest. Relocation offered.

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Salary is from £7,966-£9,571.

BL

Please phone John Elder on 01-636 1544, extension 620 for an application form, which must be returned by 6th November, 1980.

(3128)

TEAM FOR IBM 4300 INSTALLATION

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(PO 6-10 £8328-£9300)*

We are offering a unique opportunity for an exceptional person to establish a reputation. The successful applicant will be responsible for the organisation of the DP Department and the implementation of the new systems. We are very enthusiastic and determined to succeed. We need a DPM with the same commitment and the ability to accomplish this feat.

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(PO1 1-5 £7287-£8097)*

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To manage the system Software control and administer the use of CICS and DL/I and advise end-users regarding APL.

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(3188)

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Micros & Minis — Home Counties

If you have two or more years' experience in **Assembler, RTL 2** or **similar** on micros or small minis there is a wealth of job opportunities for you. In particular we are currently looking for all levels of personnel from Programmers, through Analysts and Designers, to Project Managers, with knowledge of **commercial applications.**

Our Client is the **micro division** of a leading British Systems House: at this specialist office in the **North Home Counties** teams of experts are already working on the commercial application of their own design of microprocessors.

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[3203]

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(3193)

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Contact: Jim Baker

Project Leaders and Systems Programmers
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One of the leading Consultancies in the Gulf area wish to strengthen several of their teams covering diverse application areas.

Commercial Project leaders with very strong IBM 370 and COBOL backgrounds are required. You will have a good design record and possibly exposure to CICS and on line applications.

Systems Programmers with at least 2 years CICS experience plus in depth knowledge of the OS operating system are required to support and maintain client sites.

Applicants with bachelor status preferred, but those with no more than two children will be equally considered.

Contact: Brian Postles

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Ideally a minimum of five years technical writing covering areas from operating systems through all aspects of software development to engineering guides.

Every assistance will be given in relocation, including finding new accommodation for the appointee and family if necessary. Consideration will be given for a contract appointment, but preference to fill the post permanently is of prime importance.

Contact: Janet Chilvers

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Contact: Janet Chilvers

JAMES BAKER ASSOCIATES,
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(3139)

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HR **Harvey Recruitment**
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London W1B 5EA. Tel: 01-734 5351

THE SALES BIT

Dismissals in general: Know the law

UP TO now, I have concentrated on the redundancy aspect of the Employment Protection Act. Let us now discuss the implications of dismissal in general, as opposed to redundancy in particular.

Basically, the Act identifies three circumstances in which the employees can be categorised as having been dismissed: The employee's contract of employment is terminated by the employer, with or without notice; the employee's fixed-term contract of employment expires and is not renewed; the employee terminates his or her own employment, with or without notice, because of circumstances created by the employer.

The latter category is sometimes referred to by the employer as "constructive dismissal" and by the employee as "forced resignation". In this respect, there are many circumstances of employer conduct which entitle the employee to be categorised as having been dismissed, with the subsequent possibility of claiming unfair dismissal.

Consent

Here are just a few of them to give you the flavour: Reducing pay; changing hours; changing the job function; changing the place of work; cancelling free transport and suspension without pay.

If this kind of action is taken by the employer without the employee's consent, or contrary to the agreed terms of employment, then an employee can claim to have been dismissed.

There are precedents of employees having successfully claimed unfair dismissal as a result of antagonistic behaviour on the part of the employer and threats of "resign or be sacked!"

Notice

Many employees work within the terms of an individually negotiated formal contract of employment. Such a document typically provides for a notice period of between one and three months. However, most people work to a statutory minimum period of notice which is reflected in the frequency with which they are paid, ie, monthly or weekly.

Employees who are dismissed and only entitled to the statutory minimum period of employment, and are ready and willing to work but are given none to do, or are incapable of work due to sickness or injury, or are absent because of holidays, are nonetheless guaranteed a minimum rate of pay during the notice period.

A full week's pay must be paid for each week of entirety of the notice period, whether or not any work is done.

Entitlement

If the reason for absence is sickness and the employee is receiving sick pay from the DHSS, the employer can deduct such payments when calculating the employee's entitlements. In this respect, there are many circumstances of employer conduct which entitle the employee to be categorised as having been dismissed, with the subsequent possibility of claiming unfair dismissal.

Where an employee terminates his or her own employment, then these rights apply during the notice he or she is required by law to give, but do not arise unless and until the employee leaves the service of the employer in pursuance of the notice.

Reasons

An employee who has been in continuous service with an employer for 6 months or more is entitled to request a written statement, giving details of the reasons for dismissal, if the employer terminates the contract of employment, with or without notice, or refuses to renew a fixed-term contract of employment. Such a request must be satisfied within 14 days of application.

If the employer unreasonably refuses to provide a full statement of the reasons for dismissal, or makes a statement containing untrue or inadequate information, the result of a hearing before an industrial tribunal is likely to lead to an award of two weeks' pay in compensation, and the use of the said document as admissible evidence in any subsequent proceedings for unfair dismissal.

COURSES & CONFERENCES

Protection of software

A CONFERENCE on the protection of computer software is being held at the Carlton Tower Hotel in London on October 30. Organised by European Study Conferences, it considers the means of protection for software such as patent, copyright and trade secrets. At the same venue on October 31, ECS is holding a conference on overcoming the legal hazards and financial risks of using computers. It will consider several problems, including how a computer can be used as evidence in a Court of Law, how copyright infringement can be detected, and the remedies to combat computer fraud. The fee for both conferences is £100 + VAT. For further information, contact European Study Conferences, Kirby House, 13 High Street, Uppingham, Rutland, LE15 9PY. Tel: (057 282) 2711.

A COURSE on systems reliability is being held on November 20 in Hampshire. Organised by RM Consultants, the course will cover topics such as the economics of equipment replacement and systems reliability assessment. For further information contact the course director, Roy Culham, on (0903) 65405.

Puzzle Answer